RADview/TDM

Element Management System for TDM Applications

FCD-E1LC/FCD-T1LC

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Chapter 1
Introduction

This chapter provides an overview of the FCD-E1LC/FCD-T1LC devices and the RADview FCD-E1LC/FCD-T1LC user interface.

1.1 Overview of RADview FCAPS model

RADview provides a complete solution for monitoring and controlling FCD–E1LC and FCD-T1LC devices. The RADview solutions conform to ITU-T Telecommunication Management Network (TMN) recommendations for SNMP management systems, known as the FCAPS model:

- **Fault management** – detects and correlates fault in network devices, isolates faults and initiates recovery actions.
- **Configuration management** – tracks configuration changes, configures, installs and distributes software and configuration files across the network.
- **Accounting management** – collects accounting data and generates network usage reports.
- **Performance management** – continuously monitors network performance (QoS, CoS) and resource allocation.
- **Security management** – controls and restricts access to network resources.

1.2 Brief Description of the FCD-E1LC and FCD-T1LC devices

The FCD-E1LC and FCD-T1LC are managed single- or dual-port access units for business applications that integrate voice and data traffic over E1 (2.048 Mbps) / T1 (1.544 Mbps) and fractional E1/T1 services. FCD-E1LC /FCD-T1LC can be used as a rate and interface converter or as an integrating E1/T1 multiplexer for Fractional E1/T1 services. Data port rates for FCD-E1LC are selectable for any multiple of 64 kbps, up to 2048 kbps. Data port rates for FCD-T1LC are selectable for any multiple of 64 kbps, up to 1536 kbps. User data of each port is placed into an E1/T1 frame, using only the required number of timeslots.

FCD-E1LC /FCD-T1LC is available in a single- and dual-channel versions.

Note *In this manual, the generic term **CH** is used when the information is applicable both to CH 1 and CH 2, as well as to a single-channel version. When information is applicable to a specific channel (CH 1 or CH 2), this will be explicitly specified.*

1.3 Launching RADview FCD-E1LC /FCD-T1LC

Opening the FCD-E1LC /FCD-T1LC View Window

A TDM Unit View window exists for each unit node on the map.

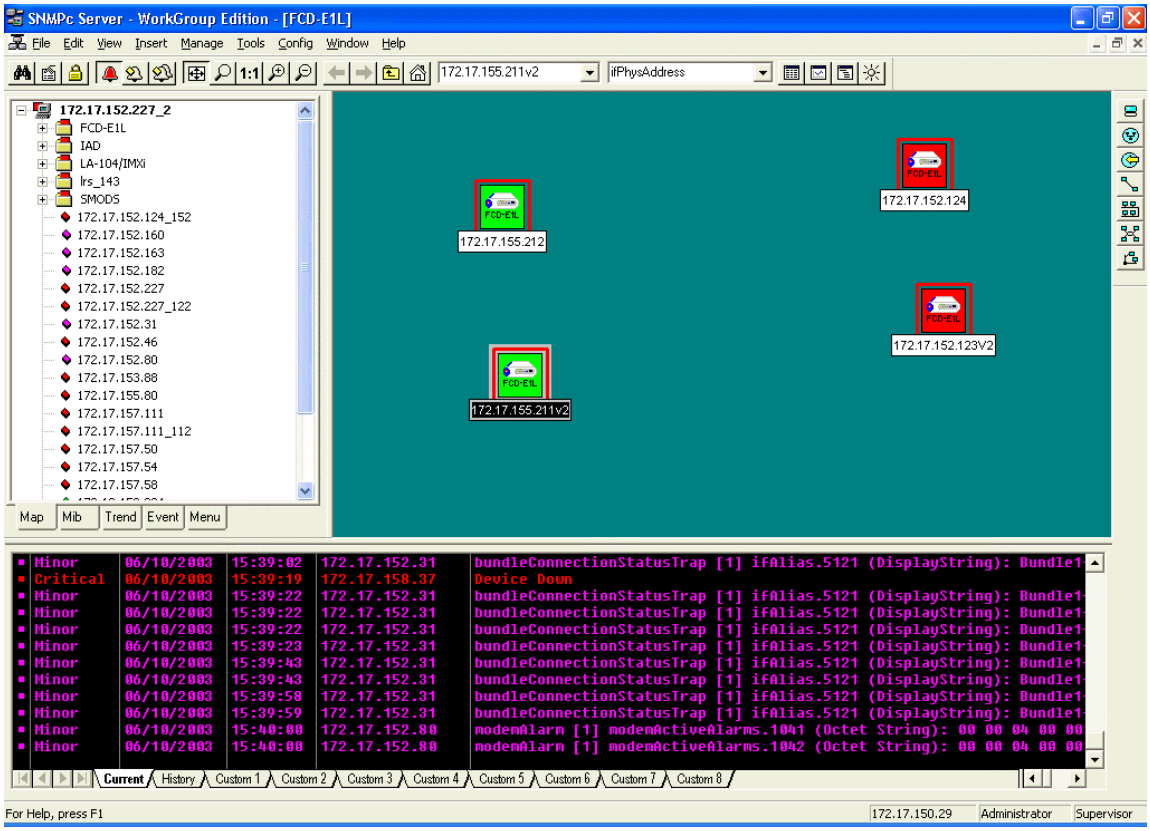


Figure 1-1. FCD-E1/T1-LC Devices on SNMP Map

➤ **To open the FCD-E1LC /FCD-T1LC window:**

- Double-click on an FCD-E1LC /FCD-T1LC icon in the net map.

The FCD-E1LC /FCD-T1LC Edit Configuration Mode appears.

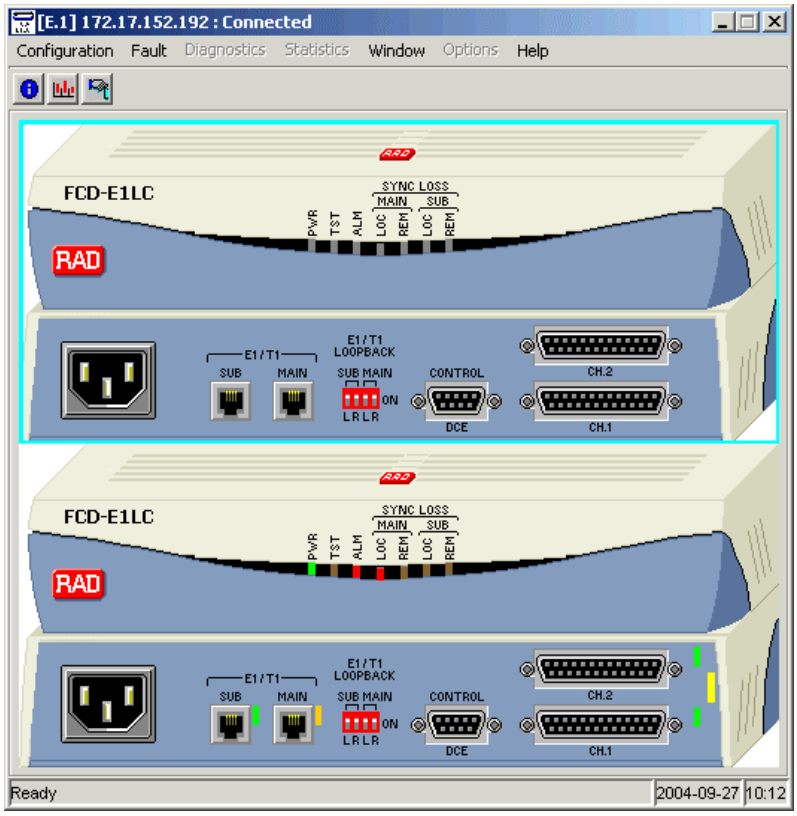


Figure 1-2. FCD-E1LC Edit Configuration in Focus

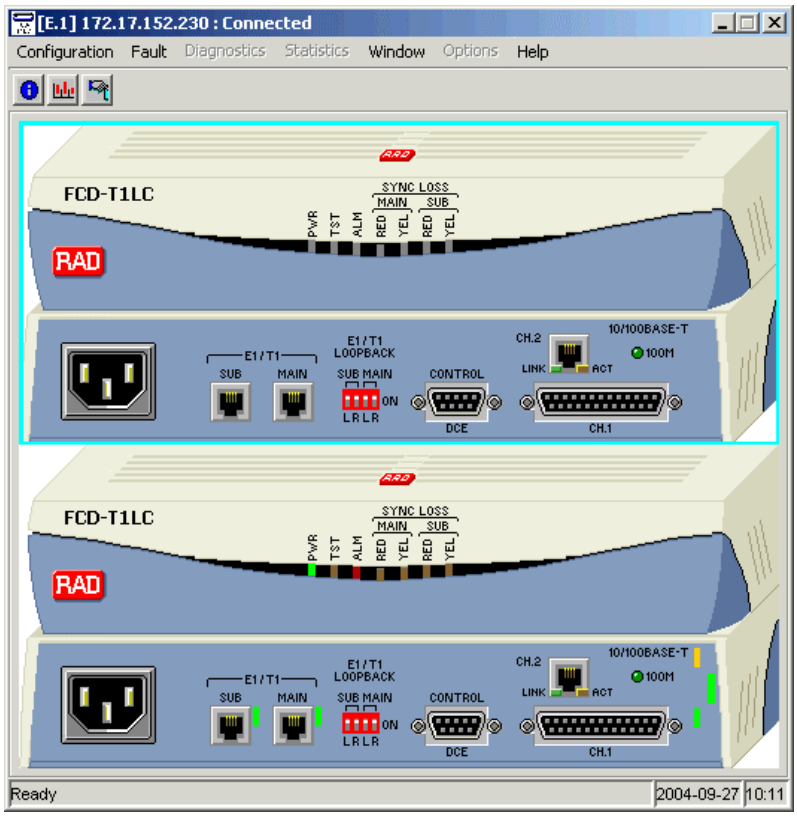


Figure 1-3. FCD-T1LC Edit Configuration in Focus

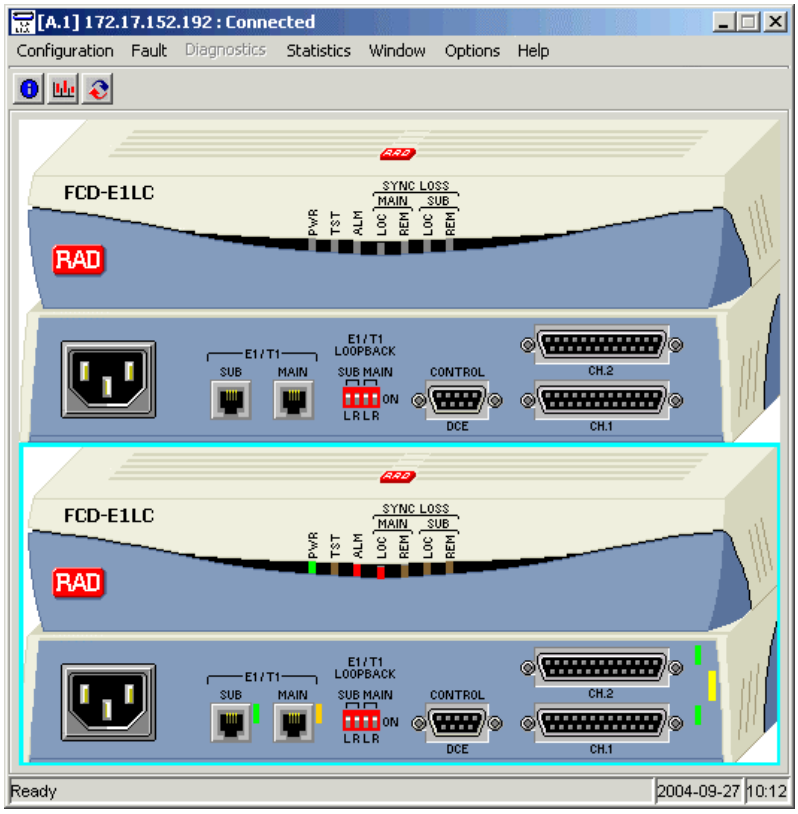


Figure 1-4. FCD-E1LC Agent Configuration in Focus

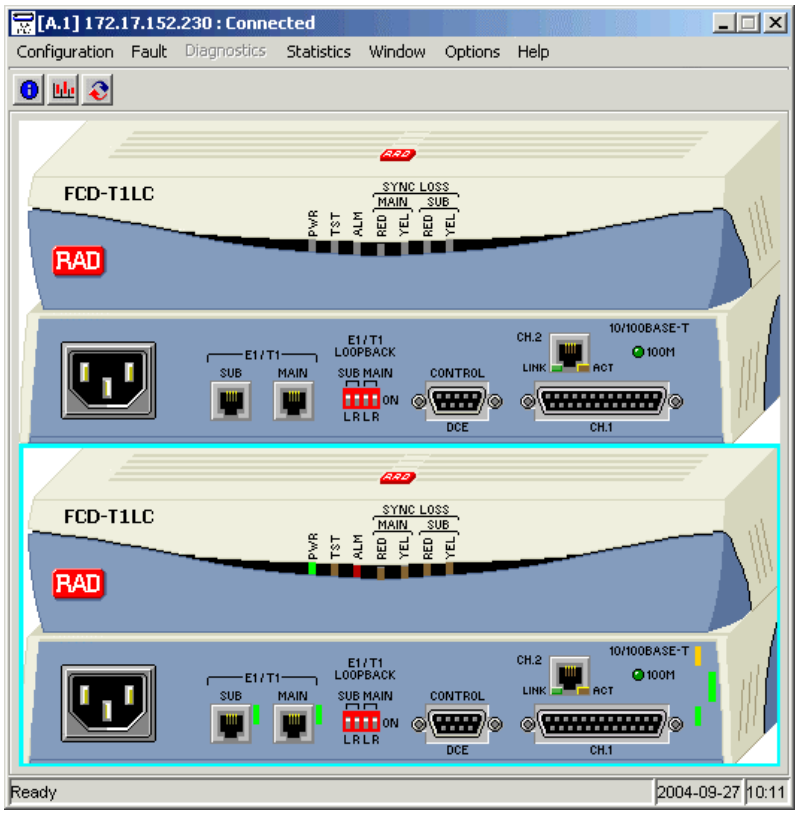


Figure 1-5. FCD-T1LC Agent Configuration in Focus

Using the Graphical User Interface (GUI)

The FCD-E1LC /FCD-T1LC Level window provides a dynamically updated graphical representation of the front and rear panel, allowing you to monitor and manage FCD-E1LC /FCD-T1LC operations. The view includes port interfaces and their operational and communication status.

Status Bar

The Status Bar indicates if FCD-E1LC /FCD-T1LC is Connected or Disconnected.

Menu Bar

The Edit/Agent mode menu bars include any of the following pull-down menus: Configuration, Fault, Diagnostics, Statistics, Window, Options and Help. Menu contents differ between Edit and Agent modes, and differ when ports are selected.

Toolbar

The following shortcut keys are available on the toolbar:

FCD-E1LC /FCD-T1LC Info – Display status and configuration of current FCD-E1LC /FCD-T1LC .

TS Assignment – View the actual timeslot assignments for all ports.

Poll Agent – Causes the NMS to poll the agent.

Software Configuration – access the port configuration dialog box.

Reset – Resets the FCD-E1LC /FCD-T1LC device.

Agent/Edit Modes

Two views of the agent are displayed in the FCD-E1LC /FCD-T1LC view window:

- The top view, *Edit Configuration Mode*, corresponds to a configuration that is stored in the management station. In the Edit Configuration mode, you can change configuration settings.
- The bottom view, *Agent Mode*, corresponds to the agent unit as a whole, and to the current configuration of the selected agent. In the Agent mode, you can monitor the configurations and performance of the FCD-E1LC /FCD-T1LC and its ports.

One mode may be selected at any given time. The selected (active) mode is surrounded by a light blue border.

➤ **To display the Agent mode:**

- From the **Window** menu, select **Agent View**.

➤ **To toggle between the Agent mode and the Edit Configuration mode:**

- Click on the hub which is not currently selected.

Edit Configuration Mode

The Edit Configuration mode (top) is always displayed in the FCD-E1LC /FCD-T1LC Level window. The Edit Configuration mode is used to design configuration modifications, without interfering with ongoing FCD-E1LC /FCD-T1LC activities. Any Edit Configuration can be downloaded to the FCD-E1LC /FCD-T1LC unit.

The contents of the window **Title Bar** and **Menu Bar** depend on the selected view.

If the Edit Configuration mode is selected, the following appears:

- **Window Title –** The window title identifies the selected mode - E (Edit), the selected configuration (1 to 10), the FCD-E1LC /FCD-T1LC name, and its current status, Connected or Disconnected. It is possible to prepare a configuration without being connected to the agent.
- **Window Menu Bar –** The Edit Configuration mode menu bar includes the **Configuration**, **Fault**, **Window** and **Help** pull-down menus. Menu contents differ when cards or ports are selected.

Agent Mode

The Agent mode (bottom) displays the current parameters of the agent currently operating. This data includes system information (hardware and software), interface information, and channel configuration values. The data displayed in the Agent mode may be used for comparison and analysis when preparing a configuration in the Edit Configuration mode.

Diagnostic operations can also be performed at the management station from the Agent mode. In addition, event and active alarm messages are accessed here.

If the Agent mode is selected, the following appears:

- **Window Title –** The window title identifies the selected mode - A (Agent), the selected configuration (1 to 10), the FCD-E1LC /FCD-T1LC name, and its current status, Connected or Disconnected.
- **Window Menu Bar –** The Agent mode menu bar includes the **Configuration**, **Statistics**, **Fault**, **Window**, **Options** and **Help** pull-down menus. Menu contents differ when ports are selected.

LEDs

Table 1-1 describes the FCD-E1LC LEDs on the front panel.

Table 1-1. FCD-E1LC LEDs

LED Name	Color	Remarks
PWR	Green	On: When power is on (always in NMS) Off: When power is off
TST	Yellow	Indicates that a test is running on one of the ports
ALM	Red	On: When there is a minor alarm Blinking: When there is a major alarm
E1: LOC (MAIN) (FCD-E1LC only)	Red	Indicates Local Sync Loss alarm on MAIN link
T1: RED (MAIN) (FCD-T1LC only)	Red	Indicates Red alarm on MAIN link
E1: REM (MAIN) (FCD-E1LC only)	Red	On: When there is a Remote Sync Loss alarm on the Main link
T1: YEL (MAIN) (FCD-T1LC only)	Yellow	On: when there is a Yellow Alarm on the Main link
E1: LOC (SUB) (FCD-E1LC only)	Red	Indicates Local Sync Loss alarm on SUB link
T1: RED (SUB) (FCD-T1LC only)	Red	Indicates Red alarm on SUB link
E1: REM (SUB) (FCD-E1LC only)	Red	Indicates Remote Sync Loss alarm on SUB link
T1: YEL (SUB) (FCD-T1LC only)	Yellow	Indicates Yellow alarm on SUB link

1.4 System Level Operations

Table 1-2 lists the system management options for FCD-E1LC /FCD-T1LC possible in the Edit mode.

Table 1-2. System Level Management Options – Edit Mode

Tasks – Configuration	**Dialog Box and Parameter Location**	**Path**
Configuring FCD information	FCD information dialog box (See *Configuring FCD Information)*	Configuration ➥FCD Info…
Displaying system information	System Information dialog box (See *Displaying System Information*)	Configuration ➥System Info…
Configuring TS Assignment	TS Assignment dialog box (See *Configuring Timeslot Assignment)*	Configuration ➥TS Assignment…
Read	See *Reading (Uploading) the Agent Configuration*	Configuration ➥Read …
Tasks – Fault	**Dialog Box and Parameter Location**	**Path**
Update	See *Updating (Downloading) the Configuration to the Agent*	Configuration ➥Update …
Poll Agent	See *Polling the Agent*	Configuration ➥Poll Agent
Tasks – Fault	**Dialog Box and Parameter Location**	**Path**
Displaying Sanity Check Errors	Sanity Check Errors List (See *Viewing Sanity Check Errors*)	Fault ➥Sanity Check Errors…
Tasks – Window	**Dialog Box and Parameter Location**	**Path**
Displaying Edit/Agent View	See *Displaying Agent View*	Window ➥Agent View

Table 1-3 lists the management options for FCD-E1LC /FCD-T1LC possible in the Agent mode.

Table 1-3. System Level Management Options – Agent Mode

Tasks – Fault	Dialog Box and Parameter Location	Path
Masking Alarms	Mask System Alarms dialog box See *Masking Alarms*	Fault ➥Alarms ➥Mask…
Displaying all active alarms	All Active Alarm List (See *Displaying All Active Alarms)*	Fault ➥Alarms ➥List ➥All…
Displaying active alarms on the system level	Active System-Level Alarm List (See *Displaying System Level Alarms)*	Fault ➥Alarms ➥List ➥System level…
Clearing active alarms	See *Clearing FCD-LC Agent Alarms*	Fault ➥Alarms ➥Clear
Clearing all alarms	See *Clearing FCD-LC Agent Alarms*	Fault ➥Alarms ➥Clear All
Defining Scope of Alarm Reports	Alarm Report dialog box See *Defining Scope of Alarm Reports*	Fault ➥Alarms ➥Report…
Displaying History Log	Alarm Buffer List See *Displaying the History Log*	Fault ➥History Log ➥List…
Clearing History Log	Alarm Buffer List See *Displaying the History Log*	Fault ➥History Log ➥Clear
Displaying Self Test Results	Self Test Results See *Displaying Self-Test Results*	Fault ➥Self Test…
Tasks – Configuration	**Dialog Box and Parameter Location**	**Path**
Displaying FCD information	FCD Information dialog box See *Displaying FCD Information*	Configuration ➥FCD Info…
Setting system information	System Information dialog box See *Setting System Information*	Configuration ➥System Info…
Setting Date and Time	Agent Date & Time dialog box See *Setting the Agent Date and Time*	Configuration ➥Date & Time…
Displaying TS Assignment	TS Assignment Window See *Displaying Timeslot Routing Connections*	Configuration ➥TS Assignment…

Table 1-3. System Level Management Options – Agent Mode (Cont.)

Reset	See *Resetting the FCD*	Configuration ➥Reset
Tasks – Statistics	**Dialog Box and Parameter Location**	**Path**
Displaying G.826 Data	G.826 Current Data See *Displaying G.826 Statistics*	Statistics ➥G.826 Data
Tasks – Options	**Dialog Box and Parameter Location**	**Path**
Configuring the Manager List	Manager List (See *Configuring the Manager List*)	Options ➥ Manager List…

1.5 Port Level Operations

Note *Port level operations are available only when a port is selected (in focus).*

Table 1-4 lists the port level management options for FCD-E1LC /FCD-T1LC available in the Edit mode.

Table 1-4. Port Level Management Options – Edit Mode

Tasks – Configuration	**Dialog Box and Parameter Location**	**Path**
Software Configuration (Main E1, Main T1, CH 1, CH 2, SP)	Port Software Configuration dialog box See *Configuring Port Parameters*	Configuration ➥Port Parameters ➥ Software Configuration…
Configuring BERT Parameters	BERT Parameters dialog box See *Configuring BERT Parameters*	Configuration ➥Port Parameters ➥BERT Param…
Configuring Inband Loop Parameters	Inband Loop Parameters dialog box See *Configuring Inband Loop Parameters*	Configuration ➥Port Parameters ➥Inband Loop Param…
Configuring User Information	User Information dialog box See *Configuring User Information*	Configuration ➥User Info…

Note *Port level operations are available only when a port is selected (in focus).*

Table 1-5 lists the port level management options for FCD-E1LC /FCD-T1LC available in the Agent mode.

Table 1-5. Port Level Management Options – Agent Mode

Tasks – Fault (CH and E1/T1 only)	**Dialog Box and Parameter Location**	**Path**
Mask Alarms	Port Mask Alarms See *Masking Port Alarms*	Fault ➥Alarms ➥Mask…
List all alarms	Port Active Alarm List See *Displaying Port Active Alarms List*	Fault ➥Alarms ➥List…
Clear alarms	See *Clearing the Alarm Buffer*	Fault ➥Alarms ➥Clear
Displaying E1 Link Status	Line Status See *Displaying Port Failures*	Fault ➥Line Status…
Tasks – Configuration	**Dialog Box and Parameter Location**	**Path**
Displaying Port Information	Port Information dialog box See *Displaying Port Information*	Configuration ➥Port Parameters ➥ Port Information…
Displaying Port Configuration (for SP, E1/T1, CH)	System Information dialog box See *Displaying Port Configuration*	Configuration ➥Port Parameters ➥Software Configuration…
Configuring Callout Destinations (for SP only)	Call Out Destinations dialog box See *Configuring Callout Destinations*	Configuration ➥Port Parameters ➥Call Out Destinations
Bert Counters	Bert Counters dialog box (See *BERT Counters*)	Configuration ➥BERT Param…
Inband Loop Parameters	Inband Loop Parameters dialog box (See *Configuring Inband Loop Parameters*)	Configuration ➥Inband Loop Param…
Tasks – Diagnostics (for CH and E1/T1 only)	**Dialog Box and Parameter Location**	**Path**
Running Diagnostic Tests	Port Tests dialog box (See *Running the Diagnostic Tests)*	Diagnostics ➥Test…
BERT Counters (CH1 only)	BERT Counters dialog box (See *BERT Counters*)	Diagnostics ➥BERT Counters…
Tasks – Statistics (for E1/T1 only)	**Dialog Box and Parameter Location**	**Path**
Set Polling interval	Polling Interval – E1/T1 – Agent (See *Polling Interval*)	Statistics ➥Port Performance ➥Polling Interval…

Table 1-5. Port Level Management Options – Agent Mode (Cont.)

View Current Data table and graph	Current Data (See *Displaying Current Data Table and Graph*)	Statistics ➥Port Performance ➥Current Data…
View Interval Data table and graph	Interval Data (See *Displaying Interval Table and Graph*)	Statistics ➥Port Parameters ➥Interval Data…
Resettng Statistics	See *Reset Statisitics*	Statistics ➥Port Performance ➥Reset Statistics…
Viewing FDL Rx messages (FCD-T1LC only)	FDL Rx Message dialog box (see *Displaying FDL Rx Messages (FCD-T1LC only)*	Statistics ➥FDL Message ➥Rx…

Chapter 2

Fault Configuration

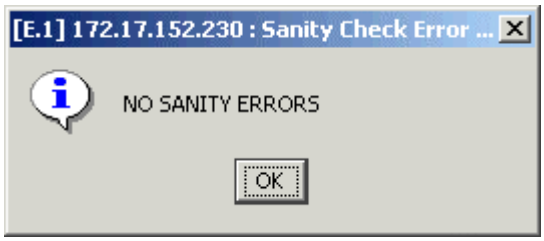
2.1 System Level – Edit Menu

Viewing Sanity Check Errors

➤ **To view the results of the last agent sanity check:**

1. **Fault** > **Sanity Check Errors...**

   If the Edit Configuration does not contain error(s) or warning(s), the message **No Sanity Errors** appears.



2. Click <**OK**> to continue.

   If the sanity check detects errors or warning situations, the Sanity Check Errors List and/or Warning List appears on the screen. Errors appear first in the list, followed by warnings. If necessary, click the scroll bar and scroll arrows to view the additional entries.

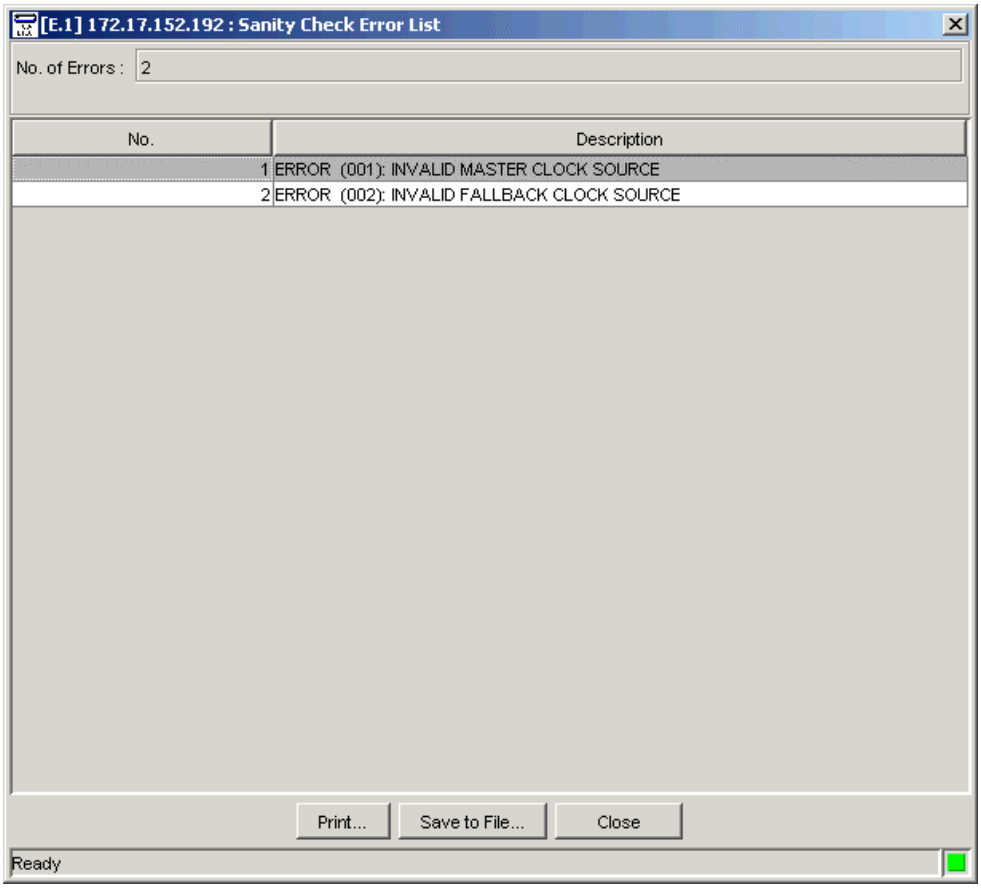


Figure 2-1. Sanity Check Error List

2.2 System Level – Agent Menu

Masking Alarms

The **Mask...** command displays a list of active unmasked alarms for the selected FCD-LC, including system (agent) and port alarms.

Note *Masking active alarms will also mask them from the History Log.*

➤ **To view all active FCD-LC alarms:**

1. **Fault** > **Alarms** > **Mask**…

   The Mask System Alarms dialog box appears.

2. Select the alarms you want to mask and click <**Set**>.

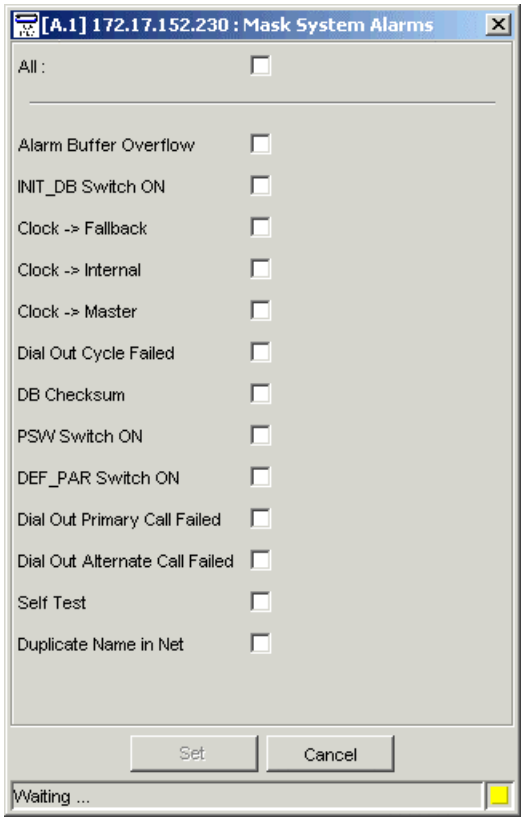


Figure 2-2. Mask System Alarms Dialog Box

Displaying All Active Alarms

The **List>All...** command displays a list of active unmasked alarms for the selected FCD-LC, including system (agent) and port alarms.

➤ **To view all active FCD-LC alarms:**

- **Fault** > **Alarms** > **List** > **All**…

  The FCD All Active Alarm List appears.

The FCD All Active Alarm List displays active system and port alarms. If the list is long, you can click the scroll bar or scroll arrows to display more entries.

Table 2-1. FCD-LC Active List

Parameter	Possible Values / Remarks
Code	Code which indicates a certain alarm description
Port	Port in which the alarm originated.
Description	Description of the alarm
Status	State of the alarm **Minor** , **Major**

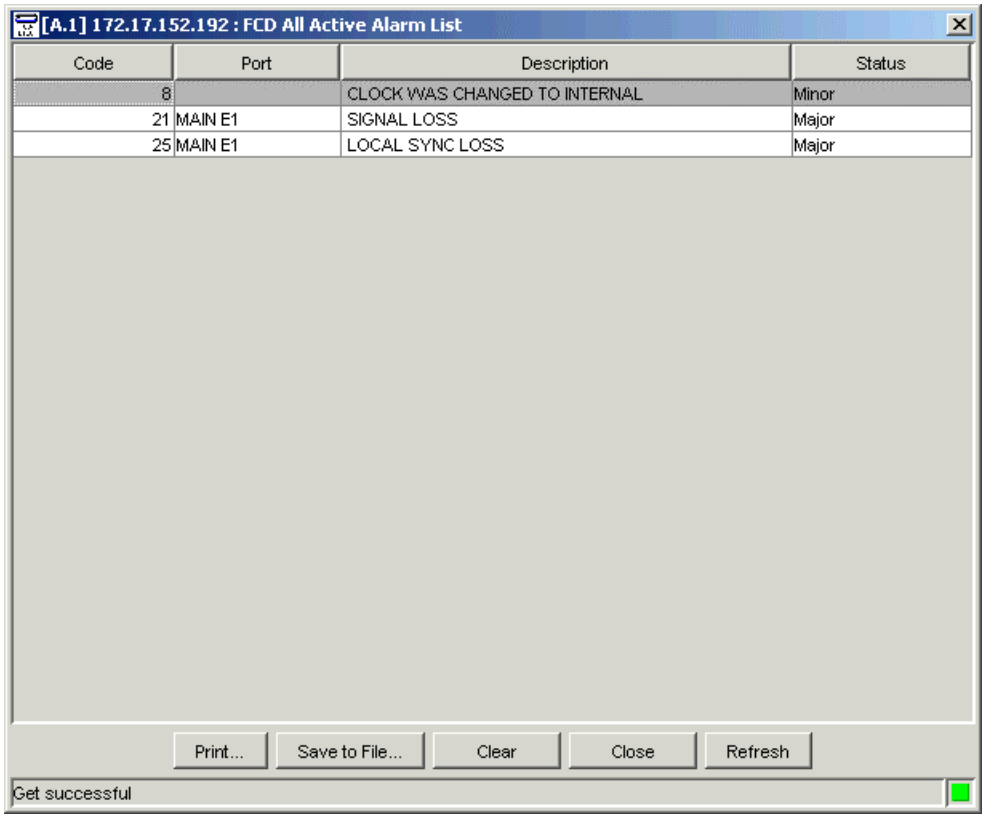


Figure 2-3. All Alarms Active List

Displaying System Level Alarms

The **List>System Level** command displays a list of active unmasked alarms for the selected FCD-LC only.

➤ **To view all active FCD-LC system level alarms:**

- **Fault** > **Alarms** > **List** > **System Level**…

  The FCD Active Alarm List appears.

The FCD Active List displays active system alarms. If the list is long, you can click the scroll bar or scroll arrows to display more entries.

Table 2-2. FCD Active Alarm List

Parameter	Possible Values / Remarks
Code	Code which indicates a certain alarm description
Description	Description of the alarm
Status	State of the alarm **Minor** , **Major**

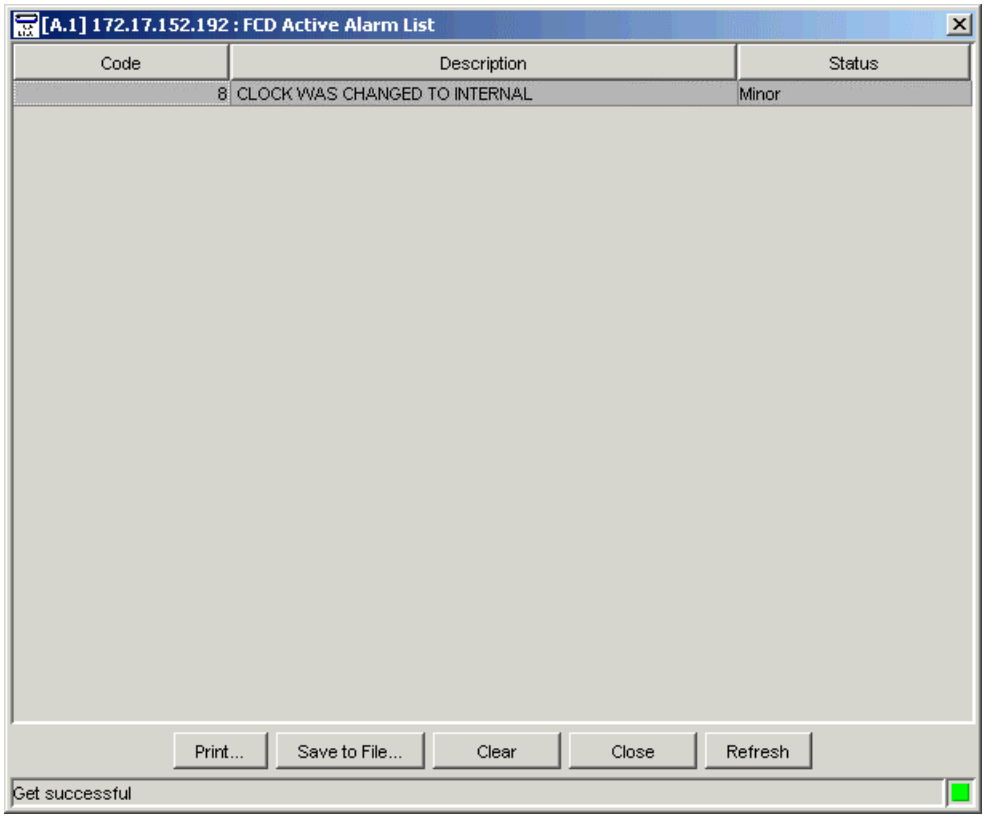


Figure 2-4. FCD Active Alarm List

Clearing FCD-LC Agent Alarms

You can clear only system level alarms or all active alarms from the system database.

➤ **To clear active system level alarms:**

- **Fault** > **Alarms** > **Clear**.

  The system does not request confirmation for this operation.

➤ **To clear all active alarms:**

- **Fault** > **Alarms** > **Clear All**.

  The system does not request confirmation for this operation.

Defining Scope of Alarm Reports

Using the **Reports** command, you can define the severity of alarm reports received at the network management station.

➤ **To define an alarm report:**

1. **Fault** > **Alarms** > **Report**…

   The Alarm Report dialog box appears where you can set the severity criteria for reporting alarms.

2. Set the severity levels in each field.
3. Click <**Set**>.

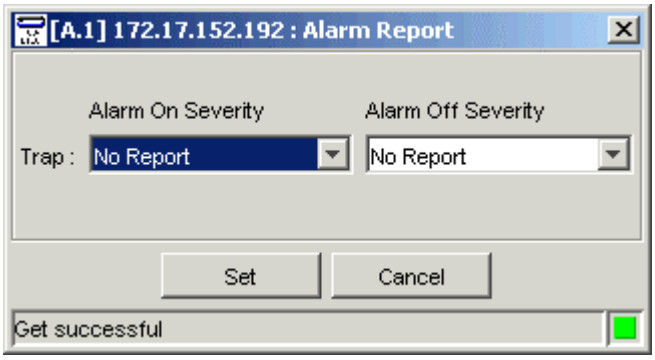


Figure 2-5. Alarm Report Dialog Box

Table 2-3. Alarm Report Parameters

Parameter	Possible Values / Remarks
Trap	**Alarm On Severity:** Minimum level of severity required for sending a trap to the network management station **No Report, Minor, Major** **Alarm Off Severity:** Maximum level of severity allowed for a trap not to be sent to the network management station **No Report, Minor, Major**

Displaying the History Log

The history log contains all the alarms listed in FCD-LC alarm buffer in chronological order of occurrence. The buffer's capacity is 256 alarms. You may view and print its contents.

➤ **To display all the alarms in FCD-LC history alarm buffer:**

- **Fault** > **History Log** > **List...**

  The Alarm Buffer List appears.

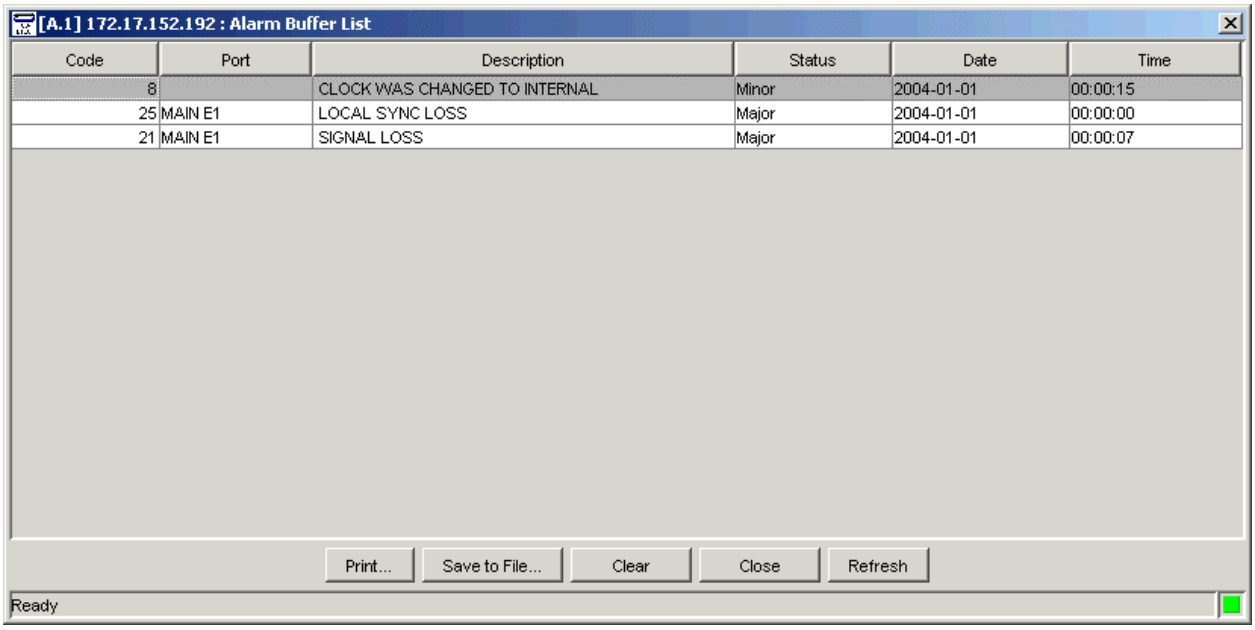


Figure 2-6. Alarm Buffer List

The Alarm Buffer List displays all the unmasked recorded alarms from system, card and port levels since the last time the log was recorded. If the list is long, you can click the scroll bar or scroll arrows to display more entries.

Table 2-4. Alarm Buffer List

Parameter	Possible Values / Remarks
Code	Code which indicates a certain alarm description
Port	Port number in which the alarm originated. This parameter is applicable only for port alarms
Description	Description of the alarm
Status	The status of the alarm **Major**, **Minor**, **Off**
Date	Date when the alarm occurred
Time	Time when the alarm occurred

➤ **To clear all the alarms from FCD-LC alarm buffer:**

- **Fault** > **History Log** > **Clear**

OR

- **Click <Clear>**.

The system does not request confirmation for this operation.

➤ **To save the list:**

1. Click <**Save to File**…>

The Save File Dialog Box appears.

2. Enter filename and select type of file (PDF or HTML).
3. Select location to save the file and click <**Save**>.

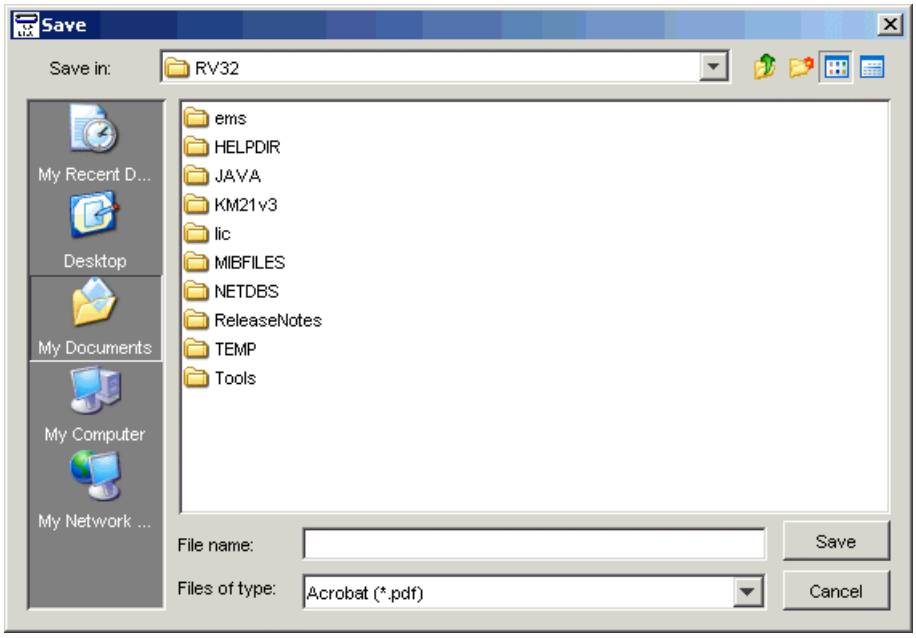


Figure 2-7. Save File Dialog Box

➤ **To print the list:**

- Click <**Print...**>

  The printer dialog box appears.

Displaying Self-Test Results

When powered, the FCD-LC runs a self-test to detect hardware failures and to provide circuit-level diagnostics data. The **Self Test** command displays the results of the selected FCD-LC self-tests.

➤ **To display FCD-LC self-test results:**

- **Fault** > **Self Test...**

  The Self Test Results dialog box appears.

This dialog box lists all possible detectable agent failures and the status of each failure. A failure in the parameter is indicated by "On". No failure detected is indicated by "—".

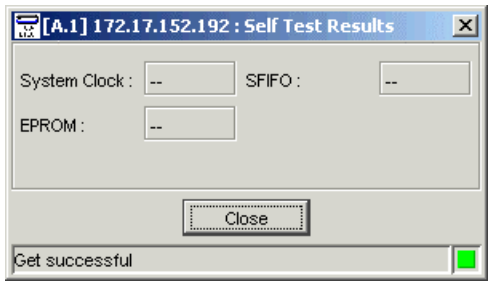


Figure 2-8. Self-Test Results

2.3 Port Level – Edit Menu

Configuring BERT Parameters

Note *BERT parameters are available for Main ports only.*

➤ **To set BERT Parameters:**

1. **Configuration** > **Port Parameters** > **BERT Param...**

   The **BERT Parameters** dialog box appears.

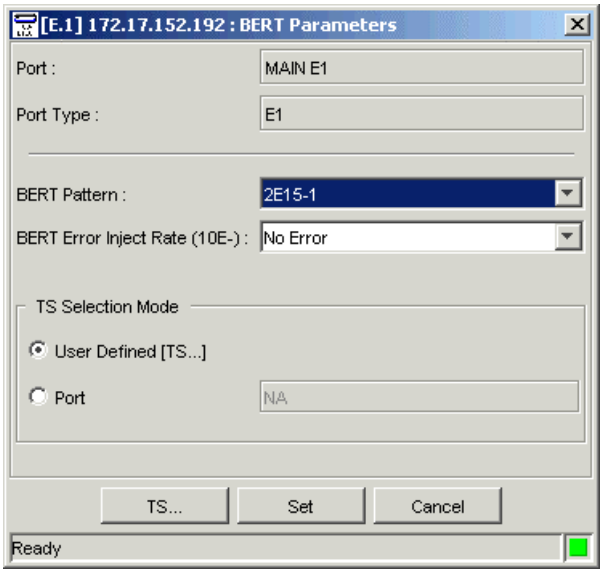


Figure 2-9. BERT Parameters

Table 2-5. BERT Parameters

Parameter	Possible Values / Remarks
Port	**Main E1, Main T1**
Port Type	**E1, T1**
BERT Pattern	**511, 2047, 2E15-1, QRSS, 2E23-1**
BERT Error Inject Rate	**No Error, 1**

Configuring Inband Loop Parameters

Note *Inband Loop parameters are available for Main port only.*

➤ **To set Inband Loop parameters:**

- **Configuration** > **Port Parameters** followed by **Inband Loop Param…**

  The Inband Loop Parameters dialog box appears.

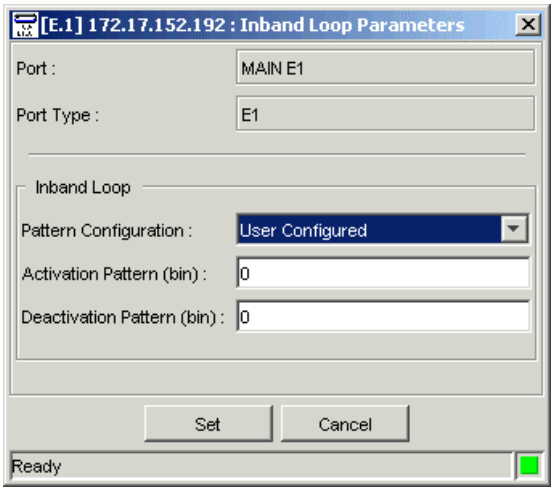


Figure 2-10. Inband Loop Parameters

Table 2-6. Inband Loop Parameters

Parameter	Possible Values / Notes
Port	**Main E1, Main T1**
Port Type	**E1, T1**
Inband Loop	
Pattern Configuration	**RDL Loop, User Configured**
Activate Pattern (bin)	Binary String of up to 8 bits (LSB is rightmost bit) Only "1" or "0" digits will be allowed. Default: 0 This field is enabled only when Pattern Configuration=User Configured
Dectivate Pattern (bin)	Binary String of up to 8 bits (LSB is rightmost bit) Only "1" or "0" digits will be allowed. Default: 0 This field is enabled only when Pattern Configuration=User Configured

2.4 Port Level – Agent Menu

Masking Port Alarms

Masking alarms changes the alarm status of the FCD-LC. If you want the change to take place immediately, you must clear the current alarms, otherwise, the effect will occur only after the next automatic system poll.

➤ **To mask alarms:**

1. **Fault** > **Alarms** > **Mask…**
2. For each alarm you want to mask, check the appropriate checkbox.

Note *Choice of alarms for masking depends on selected port.*

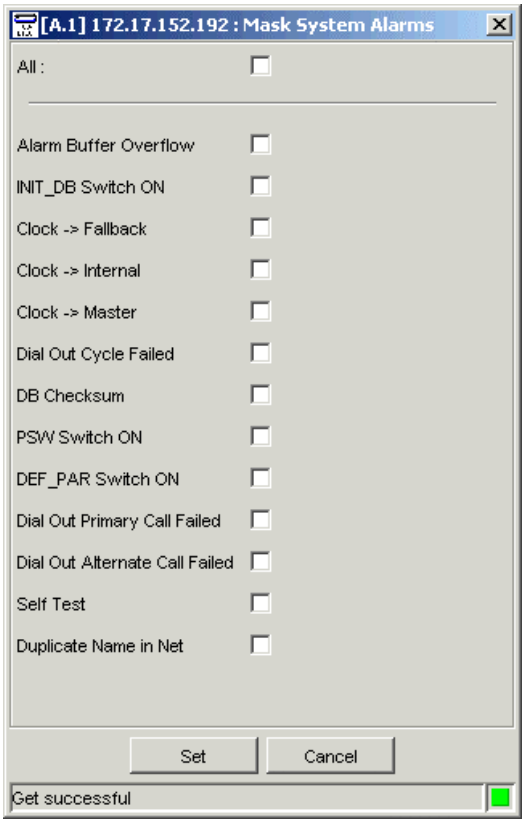


Figure 2-11. Port Mask Alarms

Displaying Port Active Alarms List

➤ **To list port active alarms:**

- **Fault** > **Alarms List…**

  The Port Active Alarms List appears.

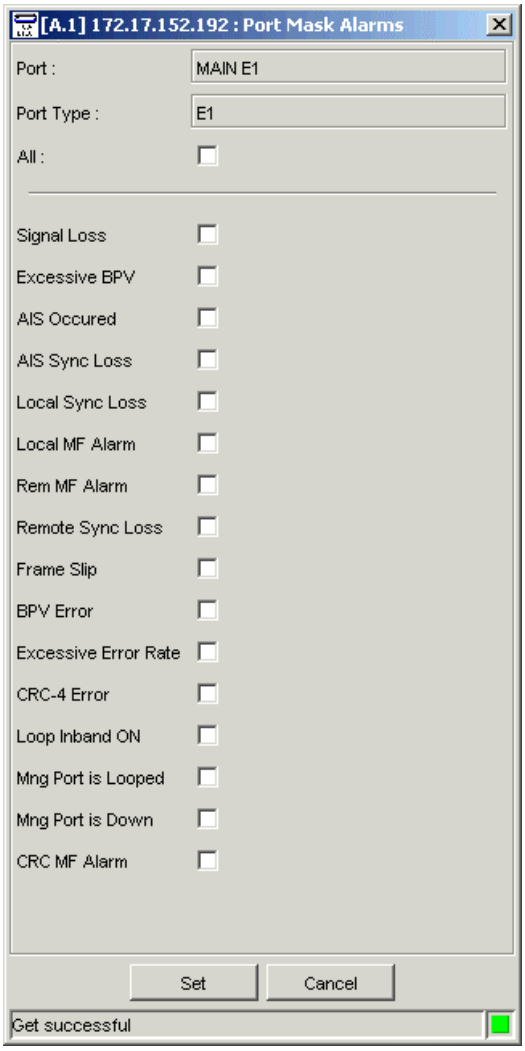


Figure 2-12. Port Active Alarm List

Table 2-7. Active Alarm List

Parameter	Possible Values / Notes
Port	**MAIN E1, MAIN T1, SUB E1, SUB T1, CH 1, CH 2**
Port Type	**E1, T1, HS**
Code	Alarm code
Description	Text description
Status	**Minor, Major**

➤ **To save the list:**

1. Click <**Save to File**…>
   The **Save to File** Dialog Box appears (*Figure 2-7*).
2. Enter filename and select type of file (PDF or HTML).
3. Select location to save the file and click <**Save**>.

➤ **To print the list:**

- Click <**Print…**>

  The printer dialog box appears.

Clearing the Alarm Buffer

➤ **To clear alarms:**

- From the **Fault** menu, select **Alarms** followed by **Clear**.

  The alarms are cleared from the buffer.

Displaying Port Failures

The **Line Status** command allows you to view failures, if any, in the selected port.

Note *Line Status is available for E1/T1 Main and Sub ports only.*

➤ **To display port failures:**

- From the **Fault** menu, select **Line Status**.

  The Line Status dialog box appears.

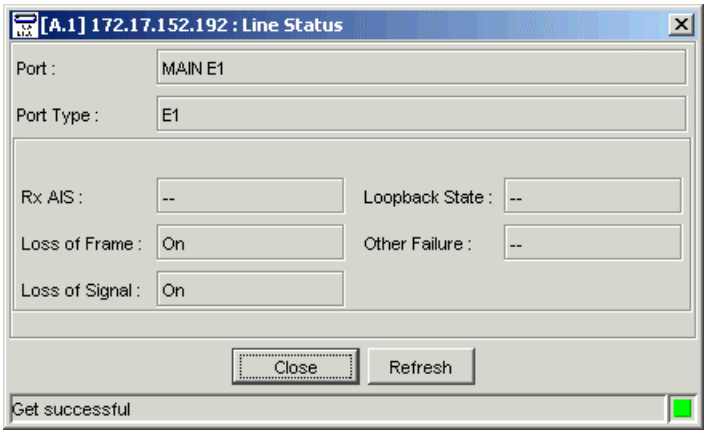


Figure 2-13. Line Status

The dialog box lists all possible detectable port failures and the status of each failure. The possible failures depend on the type of port. The available status options are:

On	Failure exists.
—	No failure.

Running the Diagnostic Tests

➤ **To enter the diagnostic test function:**

- **Diagnostics** > **Test...**

  The Port Tests dialog box appears. A sample Port Tests dialog box is shown for a CH 1 port.

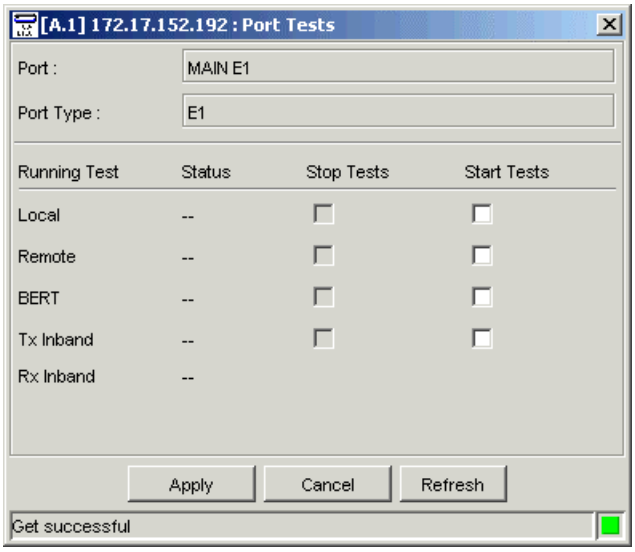


Figure 2-14. Port Tests – Agent – CH 1

The Port Tests dialog box contains the port and port type identification at the top and two main functional sections, **Status** and **Activate**.

Table 2-8. Port Tests

Parameter	Possible Values / Remarks
Port	Selected port **MAIN E1, MAIN T1, SUB E1, SUB T1, CH 1, CH 2**
Port Type	Type of port **E1, T1, HS**

The **Status** section shows the current testing status at the selected port. In addition, you can stop a currently running test.

- The **Tests** column lists the possible tests for the selected port and the status of each test. The status can be **Active** or **—**(not active).
  - For CH 1 port, BERT testing status is also included. **BERT Counter** shows the number of bit errors detected during the BERT test.

➤ **To activate/stop tests:**

- Select appropriate command from the drop down list box and click <**Apply**>.

  The agent stops and/or starts the selected tests accordingly.

BERT Counters

Note

- *BERT parameters are available for Main port only.*
- *In order to see the BERT counters, BERT test must running. Start (activate) BERT testing from the Port Test Dialog Box.*

➤ **To view the BERT counters:**

- **Diagnostics > BERT Counters…**

The BERT Counters Dialog Box appears.

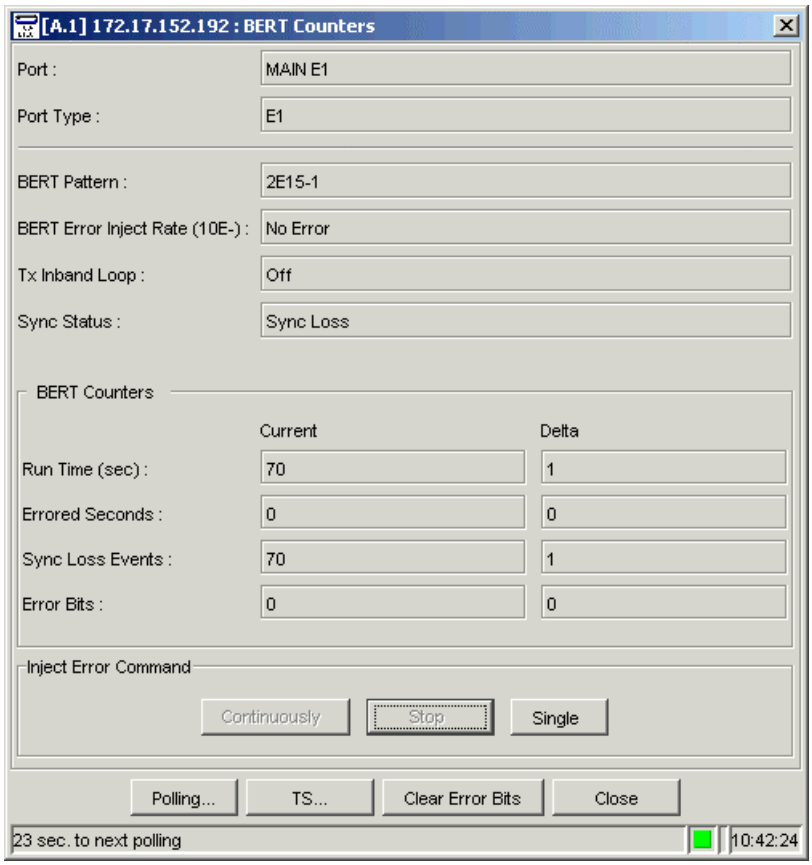


Figure 2-15. BERT Counters – CH 1 – Agent

Table 2-9. BERT Counters Parameters

Parameter	Possible Values / Remarks
Port	**Main E1, Main T1**
Port Type	**E1, T1**
BERT Pattern	BER test pattern **511, 2047, 2E15-1, QRSS**
BERT Error Inject Rate (10E-)	Rate of BERT injection **No Error, 1**
Tx Inband Loop	**On, Off**
Sync Status	**Sync, Sync Loss**
BERT Counters	
Run Time (sec)	Indicates how much time (seconds) passed since BERT started to run
Errored Seconds	How many Errored Seconds were detected since BERT started to run
Sync Loss Events	How many times Sync Loss was detected since BERT started to run
Error Bits	How many Error Bits were detected since BERT started to run
Inject Error Command	
[Stop]	Stops injection of BERT errors.
[Continuously]	Continously injects bit errors
[Single]	Injects one error
[Polling]	Clicking <**Polling**> opens BERT Polling Interval dialog box (*Figure 2-16*).
[Clear Error Bits]	Resets error bit counter to zero.

➤ **To Inject Errors while testing:**

- Click **<Continuously>** or **<Single>** (only one error is injected)

➤ **To stop Inject Errors while testing:**

- Click <**Stop**>.

➤ **To clear the Error Bits:**

- Click <**Clear Error Bits**>.

  The error bits counter is reset to zero.

➤ **To set the BERT Polling Interval:**

1. Click <**Polling**...>

   The BERT Polling Interval dialog box appears (*Figure 2-16*).

2. Set the polling interval (10, 20, 30.,..,180 seconds) by choosing a value from the drop-down list box.

3. Click <**Set**>.

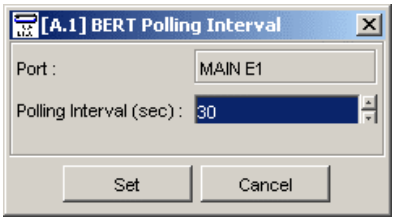


Figure 2-16. BERT Polling Interval

➤ **To set BERT TSs:**

1. Click <**BERT TS...**>
   The BERT TSs dialog box appears (Figure 2-17).
2. Check the desired TSs.
3. Click <**Close**>.

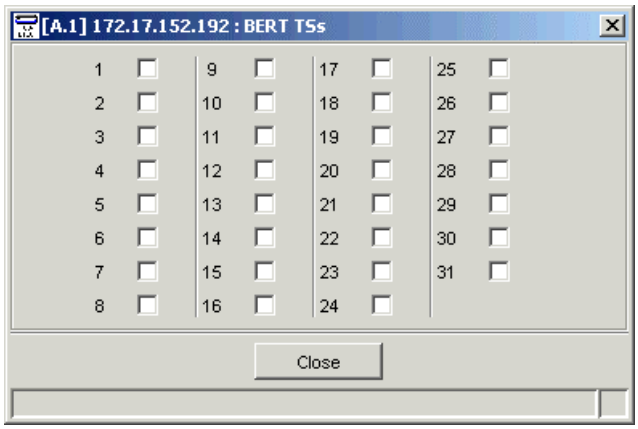


Figure 2-17. BERT TSs

Chapter 3
Configuration Management

3.1 System Level – Edit Menu

Configuring FCD-LC Information

➤ **To set FCD-LC information:**

- **Configuration > FCD Info…**

The FCD-LC Information dialog box appears.

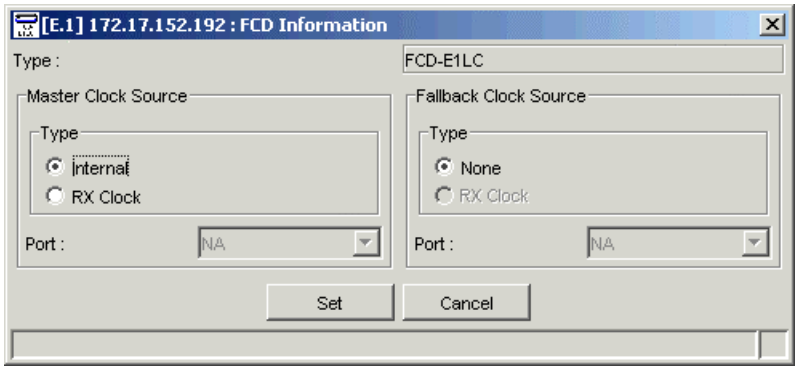


Figure 3-1. FCD Information

Table 3-1. FCD Information Parameters

Parameter	Possible Values / Notes
Type	**FCD-E1LC/FCD-T1LC**
Master Clock Source	
Type	**Internal, Rx Clock**
Port	For FCD-E1LC: **NA, MAIN E1, SUB E1, CH 1, CH 2** For FCD-T1LC: **NA, MAIN T1, SUB T1, CH 1, CH 2** ***Note:*** *This field is relevant only when Type=Rx Clock*
Fallback Clock Source	
Type	**None, Rx Clock** ***Note:*** *If Master Clock Source Type=Internal, the Type=None.*
Port	For FCD-E1LC: **MAIN E1, SUB E1, CH 1, CH 2** For FCD-T1LC: **MAIN T1, SUB T1, CH 1, CH 2**

Note

1. If Master/Fallback Type is Rx Clock
   AND
   Selected port is CH
   AND
   Line Type IS NOT Unframed, configure the CH as:

- *Rate > 0*
- *Clock Mode = DTE2*

2. It is recommended to select CH as Rx Clock for Master Clock rather than for Fallback Clock (otherwise, a warning is issued upon Update operation).

Displaying System Information

The **System Information** command enables you to display information about the system.

➤ **To display System Information:**

- **Configuration > System Info…**

  The System Information dialog box appears.

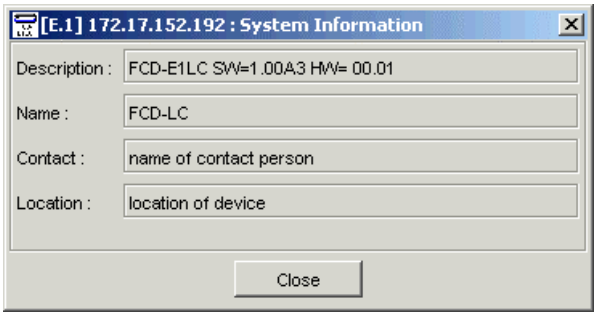


Figure 3-2. System Information

Table 3-2. System Information

Parameter	Possible Values / Notes
Description	SW and HW versions
Name	**FCD-E1LC/FCD-T1LC**
Contact	User specified
Location	User specified

Configuring Timeslot Assignment

The **TS Assignment** command allows you to program the routing of timeslots. A complete description of the TS assignment function is discussed on the following pages.

Timeslot Routing

The FCD-E1LC/FCD-T1LC allows you to program the routing of the individual timeslots.

➤ **To configure TS Assignments:**

- **Configuration > TS Assignment...**
  Or
- Click the TS button on the toolbar

  .

The TS Assignment window appears.

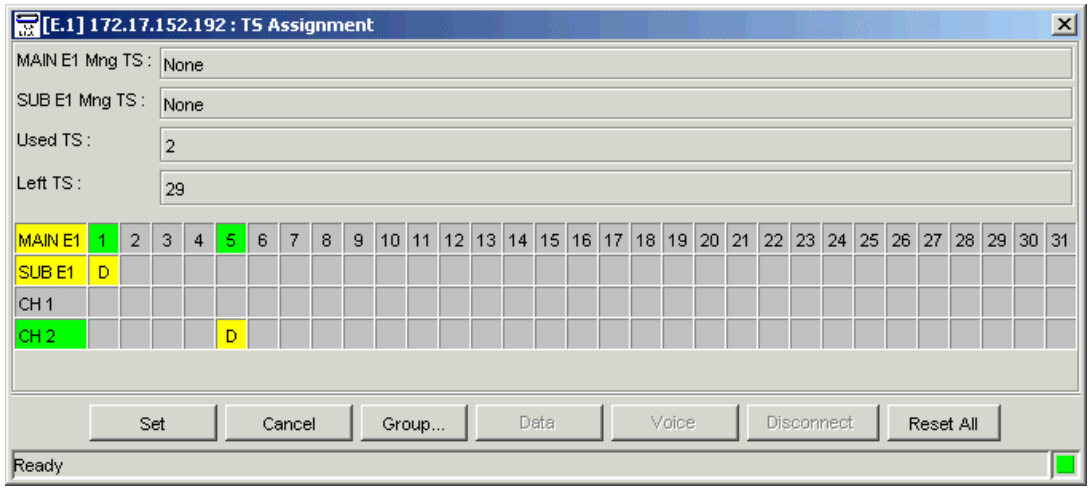


Figure 3-3. TS Assignment for FCD-E1LC

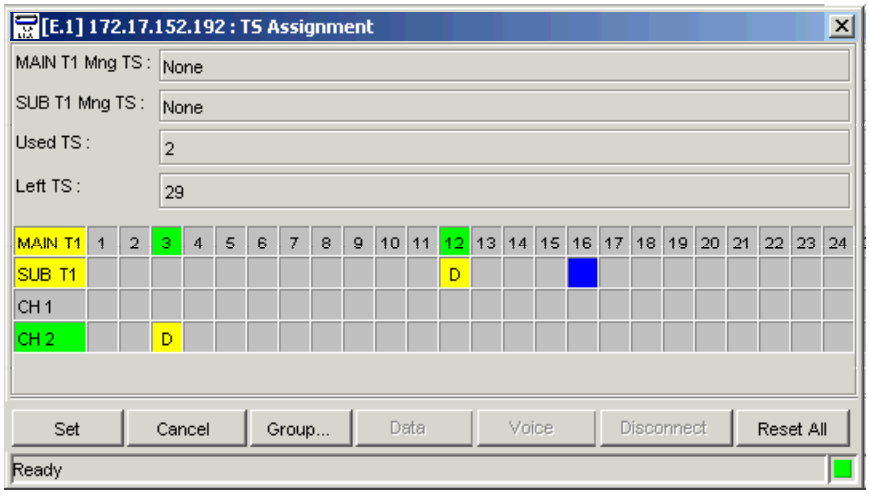


Figure 3-4. TS Assignment for FCD-T1LC

A rectangular grid displays the timeslot assignments. There are 31 timeslots for FCD-E1LC and 24 timeslots for FCD-T1LC. Each row and each column represents the possible connections of a specific port.

Colors, letters and guides indicate information about the timeslots and ports represented in the grid. Their meanings are described in the following pages.

TS Color Codes

Since each TS has only one type and can be connected to only one port, each TS column can have only one cell with a letter inside. Both connection cells and port indicator cells use color codes to relay connection information.

2	**Green + number**	TS in this port is connected and is not being used for Management
5	**Gray + number**	TS in this port is available for connection, but currently has no TS connection
	Gray empty	Cell's port has no current TS connections but can be TS connected
10	**Blue + number**	TS in this port has no connections and cannot be TS connected
	Blue empty	Cell's port has a TS connection
D	**Yellow + letter**	Cell's port has at valid TS connection of type indicated by letter
10	**Red + number**	There is an invalid connection
1	**White + number**	TSs in this port is connected and being used for Management
	White empty	Cell's port is being used for Management

Port Name Color Codes

	Green	All of the port's connectable TS connections are connected
	Gray	None of the port's connectable TSs are being used
	Red	This occurs when one of the port's cells is red
	Yellow	Some of the TSs are connected

Creating TS Connections

You can create a new TS connection only on gray cells (cells with connectable TSs).

➤ **To create a new TS connection:**

- Click an empty gray cell and click <**Data**> button.

  The cell becomes yellow and the Data connection is indicated by the letter D in the cell.

➤ **To connect a group of consecutive TS of the main E1/T1 port to the data channel (CH 1, CH 2):**

- Click <**Group**>.

  The following dialog box appears.

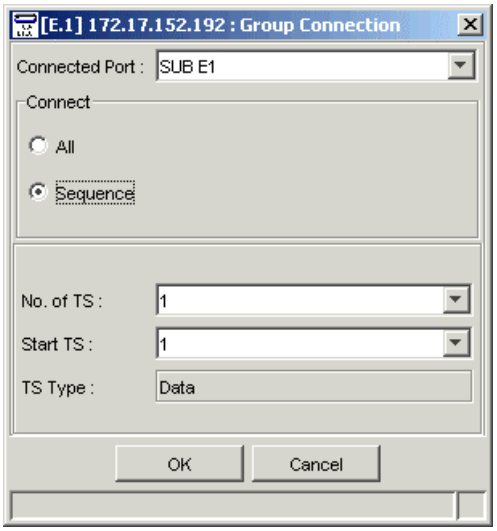


Figure 3-5. Group Connection

- To connect all connectable TSs to the channel, select <**All**>.

  All connectable TSs are connected to the channel. Their cells become yellow and the Data connections are indicated by the letter D.

- To connect a group of consecutive TS to the data channel, select <**Sequence**>. In the bottom part of the dialog box, define the number of consecutive TS to be connected and the number of the first TS to be connected.

  The cells of the defined TS become yellow and the Data connections are indicated by the letter D.

Notes

- *If TS16 selected for management is within the sequence, it will be skipped.*
- *If the rate set for any of the channels does not match its FIFO Size (selected in Port Info> SW Configuration), a warning message box is displayed for the appropriate channel. Click <OK> to close the message box and change the FIFO Size of the problematic CH to a matching value.*
- *If the new data overwrites the existing connections, the latter will be disconnected.*
- *If you defined too many timeslots to be connected, the following message box will be displayed: "'No. of TS' is too big. Max. possible TSs will be connected". When you click OK, only timeslots with numbers higher that Start TS will be connected.*

Disconnecting TS Connections

➤ **To disconnect a TS connection in a cell:**

- Click the connected cell and click <**Disconnect**>.

  The TSs cell becomes gray.

Reset All

➤ **To reset all TS connections on the grid:**

1. Ensure that no TS connection cell is selected.
2. Click <**Reset All**>.

   The message, "Removing TS connections" appears.
3. Click <**OK**> to continue.

   All existing TS connections in the port are deleted.

Reading (Uploading) the Agent Configuration

The **Read** command allows you to upload the current FCD-LC agent configuration to the Edit Configuration. After the Read operation, the Edit Configuration is identical to the Agent Configuration. The uploaded configuration is automatically stored in the management station.

Note *Read will be enabled only if there is communication with the agent.*

➤ **To upload the configuration from the agent:**

1. **Configuration > Read**.

   The message, 'Reading operation will replace Edit Configuration', appears.
2. Click <**OK>** to confirm the operation.

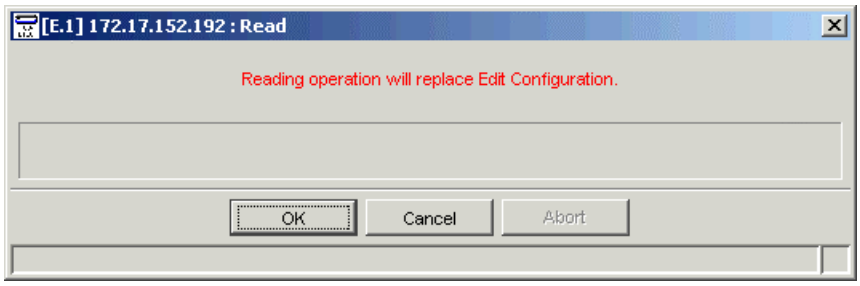


Figure 3-6. Read Configuration Message

Updating (Downloading) the Configuration to the Agent

After editing the FCD-E1LC/FCD-T1LC configuration, you can download the information to the FCD-LC Agent.

Notes

- *Update is available only when there is communication with the agent.*
- *If tests are currently active (except Rx Inband), FCD-LC sends the following message: "UPDATE CANNOT BE PERFORMED. Stop tests."*

➤ **To download configuration modifications to the agent:**

1. **Configuration > Update**.

   The system will perform a Sanity Check, and if passed, the Update Configuration Window appears displaying the message: "**Update operation will replace Agent's configuration"**.
2. Click <**OK**> to confirm Update.

The new configuration is immediately downloaded to the FCD-LC.

Note *If communication problems occur during the update process, the message "Timeout – Update result was not received" appears.*
If tests are running, the message "Update cannot be performed! Stop Tests/s!" appears.

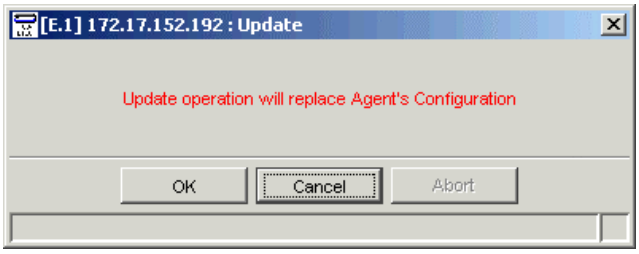


Figure 3-7. Update Configuration Dialog Box

Note *In the event that the sanity check found errors, the message **"Sanity Check Errors"** appears and update cannot be performed.*
If the sanity check failed due to warnings (not errors), a message box appears indicating that there were warnings.
The message box has the following options:
***Cancel** (leave without updating/seeing the warnings),*
***View Warnings** (see warnings that were issued during Sanity Check),*
***Close** (close message box without updating the configuration),*
***Confirm Update** (update the configuration with the warnings at any stage).*

Polling the Agent

➤ **To poll the agent:**

- **Configuration > Poll Agent**

The agent is polled.

Displaying the Agent View

If the Edit Configuration only is displayed on the screen, you may open the Agent view (if the agent is connected).

➤ **To open the agent part of the application window:**

- **Window > Agent View.**

The Agent Configuration appears below the Edit Configuration.

3.2 System Level – Agent Menu

Displaying FCD-LC Information

➤ **To display FCD-LC information:**

- **Configuration > FCD Info…**

Or

- Click the shortcut key on the toolbar .

The FCD Information dialog box appears.

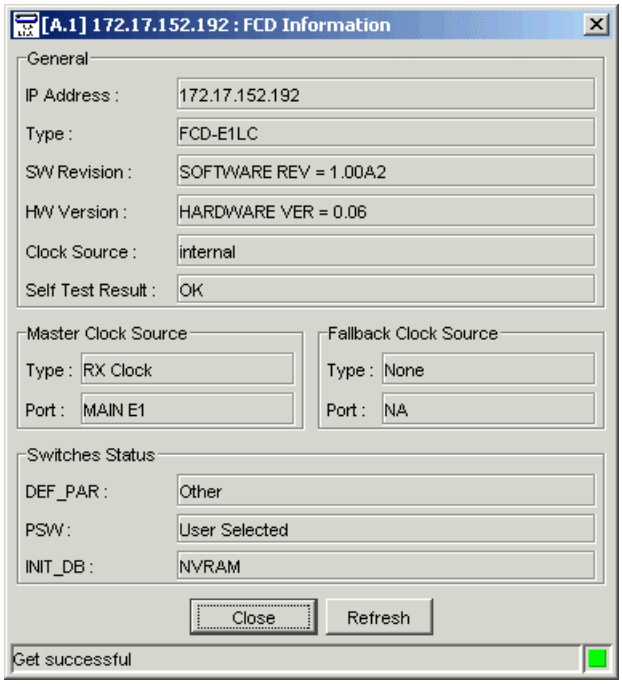


Figure 3-8. FCD Information

Table 3-3. FCD Information Parameters

Parameter	Possible Values / Remarks
General	
IP Address	Address of the selected WAN agent (double-clicked in the WAN submap)
Type	**FCD–E1LC** or **FCD-T1LC**
SW Revision	The Agent's software version
HW Version	The Agent's hardware version
Clock Source	Source of the system clock **Master**, **Fallback, Internal**
Self Test Result	**OK, Failed**
Master Clock Source	Master timing reference for FCD-LC
Type	Main source for FCD-E1LC/FCD-T1LC timing **Internal, Rx Clock**
Port	The port through which the master clock signal is received For FCD-E1LC: **NA, MAIN E1, SUB E1, CH 1, CH 2** For FCD-T1LC: **NA, MAIN T1, SUB T1, CH 1, CH 2**

Table 3-3. FCD Information Parameters (Cont.)

Parameter	Possible Values / Remarks
Fallback Clock Source	Alternate (fallback) timing reference for the main link, to be used in case the master clock fails
Type	Alternate source for FCD-E1LC/FCD-T1LC timing **Rx Clock, None**
Port	The port through which the fallback clock signal is received For FCD-E1LC: **MAIN E1, SUB E1, CH 1, CH 2** For FCD-T1LC:**MAIN T1, SUB T1, CH 1, CH 2**
Switches Status	
DEF-PAR	Source of the supervisory port parameters **Default = 1** **Other = 0**
PSW	Source of the password and management address (node number) of the supervisory port **Default = 1** **User Selected = 0**
INIT_DB	This parameter determines which FCD-LC configuration will be loaded after FCD-LC is turned off for a short time and then turned on again **Default = 1** **NVRAM = 0**

Setting System Information

The **System Information** command enables you to configure information about the system.

➤ **To display System Information:**

- **Configuration > System Info…**

The System Information dialog box appears.

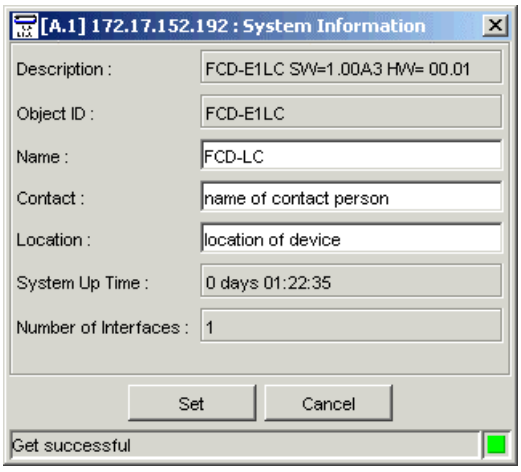


Figure 3-9. System Information

Table 3-4. System Information

Parameter	Possible Values / Notes
Description	SW and HW versions
Name	**FCD-E1LC** or **FCD-T1LC**
Contact	User specified
Location	User specified

Setting the Agent Date and Time

You can set the current FCD-LC date and time. There are three different display formats for the date:

- European (DD/MM/YYYY)
- American (MM/DD/YYYY)
- YYYY-MM-DD.

➤ **To set the date and time:**

1. **Configuration > Date & Time**…

   The Date & Time Setup dialog box appears.

2. Configure desired Date & Time parameters.
3. Click <**Set**>.

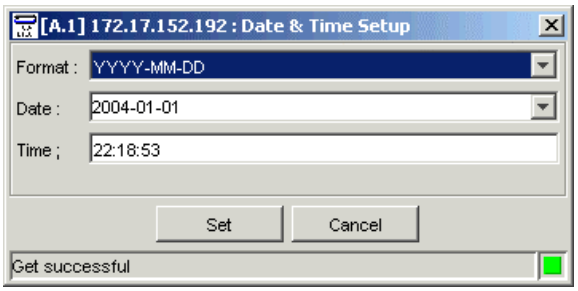


Figure 3-10. Agent Date & Time

Table 3-5. Agent Date & Time

Parameter	Possible Values / Remarks
Format	This parameter is read-only European format (**DD/MM/YYYY**), American format: (**MM/DD/YYYY**) or (**YYYY-MM-DD**)
Date	**Month, Day, Year**
Time	Time in HH:MM:SS format where HH=Hour, MM=minutes, SS=seconds

Displaying Timeslot Routing Connections

In the Agent Mode, you can view the actual timeslot assignments for all ports but you cannot connect or disconnect the timeslots.

➤ **To display the Port level TS Assignment window:**

- **Configuration > TS Assignment…**

Or

- Click the shortcut key on the toolbar

.

The TS Assignment window appears. This window displays the timeslot connections for FCD-LC ports.

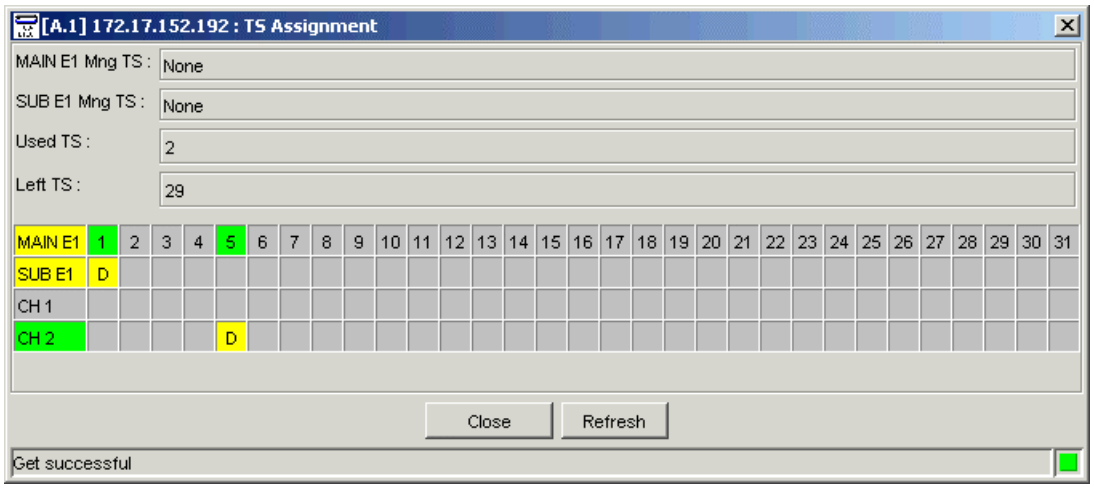


Figure 3-11. TS Assignment Window for FCD-E1LC

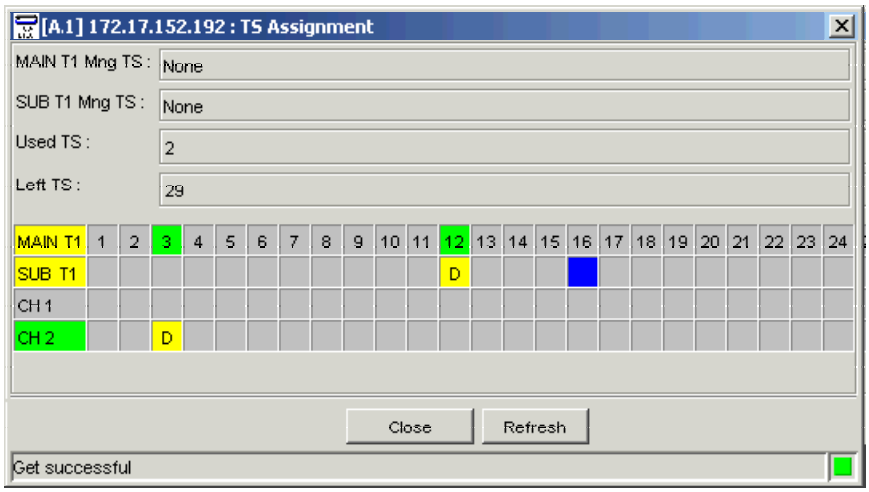


Figure 3-12. TS Assignment Window for FCD-T1LC

Resetting the FCD-E1LC/FCD-T1LC

➤ **To reset the FCD-E1LC/FCD-T1LC:**

1. **Configuration > Reset**
   Or
   Click the shortcut key on the toolbar

.

A message box ("Resetting FCD") appears asking for confirmation of the reset.

2. Click <**OK**> to confirm operation.

Configuring the Manager List

The **Manager List** command displays IP addresses of known Network Management Stations to which the FCD-LC sends SNMP traps when an alarm occurs. To receive an agent's traps, the management station must type its own IP address in the Manager List. The list may contain up to five entries.

➤ **To view/modify the Manager List:**

1. **Options** > **Manager List...**

   The Manager List dialog box appears.

2. Enter/change the IP addresses in the Manager List dialog box by clicking in the addresses field until it's highlighted. Enter the new numbers in the address field. Use the right and left arrows (or mouse) to jump to the next field.

3. Click <**Set**> to display the updated IP Address in the Manager List.

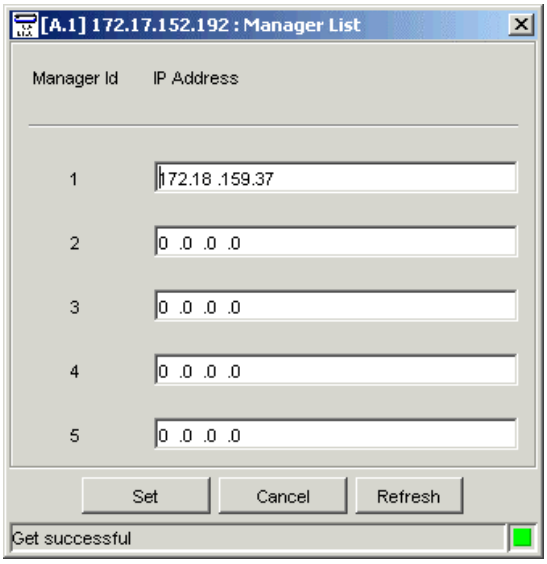


Figure 3-13. Manager List

Table 3-6. Manager List

Parameter	Possible Values / Remarks
Manager ID	Index number in the list of the management station
IP Address	IP address of the management station

Displaying the Agent View

If the Edit Configuration only is displayed on the screen, you may open the Agent view (if the agent is connected).

➤ **To open the agent part of the application window:**

- **Window** > **Agent View.**

The Agent Configuration appears below the Edit Configuration.

3.3 Port Level – Edit Menu

Configuring User Information

Note *User Information is available only for Main E1/T1, CH 1 and CH 2 ports.*

➤ **To set User Information:**

- **Configuration** > **User Information**.

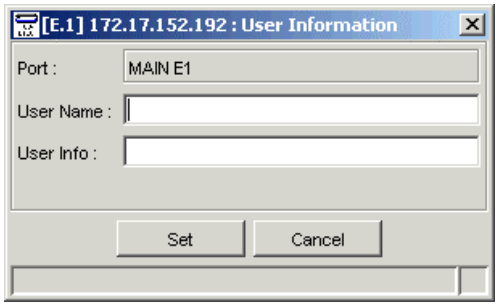


Figure 3-14. User Information

Table 3-7. User Information Parameters – SP

Parameter	Possible Values / Remarks
Port (title)	**Main E1/Main T1, CH 1, CH 2**
User Name	Editable field of 15 characters
User Info	Editable field of 70 characters

Configuring Port Parameters

Control Port Parameters

➤ **To display the parameters of the CONTROL DCE port:**

1. Select the SP - Supervisory Port icon.
2. **Configuration > Port Parameters** > **Software Configuration...**

Or

- Click the shortcut key on the toolbar .

The Port Software Configuration dialog box appears.

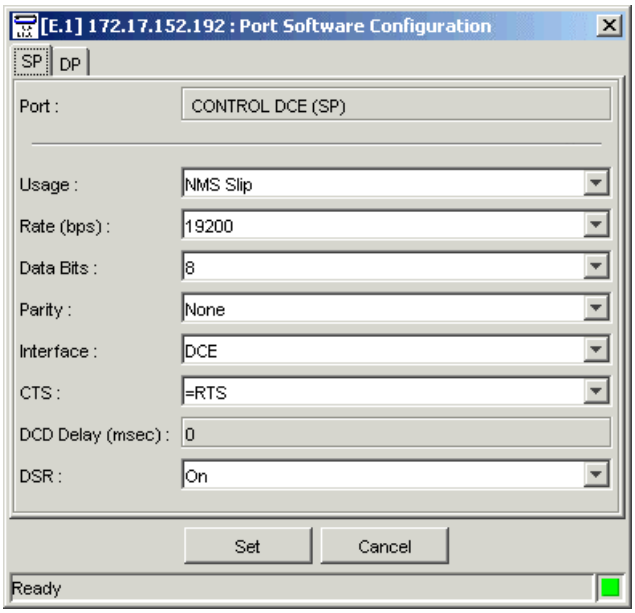


Figure 3-15. CONTROL DCE Port Configuration – SP Tab

- Select the SP tab to define the supervisory port parameters.
- Select the DP tab to define call-out parameters.

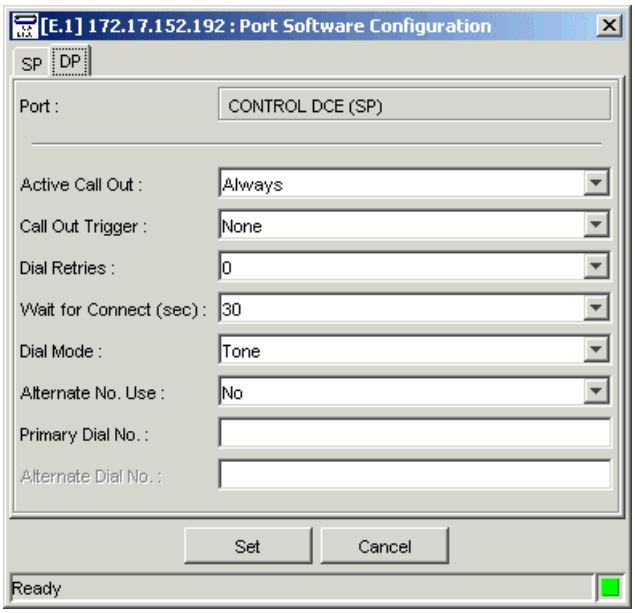


Figure 3-16. CONTROL DCE Port Configuration – DP Tab

Table 3-8. CONTROL DCE Port Configuration Parameters

Parameter	Possible Values / Remarks
Usage	Function of the selected port **NMS Slip, NMS PPP, Agent Slip, Terminal**
Rate (bps)	When Usage=Terminal: **Auto, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200** When Usage≠Terminal: **1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200**
Data Bits	Number of data bits in the word format transmitted through the selected port **7, 8**
Parity	Parity mode used by the selected port **None**, **Odd, Even**
Interface	Type of supervisory port interface **DCE** for direct connection to supervision terminal **DTE** for connection through a modem to supervision terminal
CTS	State of the CTS (Clear to Send) line in the selected port **On** – CTS is always on **=RTS** – CTS line follows the local RTS line
Parameter	**Possible Values / Remarks**
DCD Delay (msec)	Time delay between Data Carrier Detection (DCD) and the sending of the data if the interface type is DTE **0**, **10**, **50**, **100**, **200, 300**
DSR	State of the DSR line **On** – DSR line is continuously on **=DTR** – DSR line tracks the DTR line On is only applicable if Interface=DCE
Activate Call Out	Specifies when callout will be activated: **Always, Upon Link Fail**
Call Out Trigger	Controls the use of the call-out trigger: **None**, **All Alarms**, **Major Alarms**
Dial Retries	**0..8**
Wait for Connect (sec)	Specifies the time FCD-LC will wait for an answer after each dialing attempt. **30**, **45**, **60**
Dial Mode	Selects the dialing mode supported by the telephone network: **Tone**, **Pulse**
Alternate No. Use	Specifies if the alternate number will be dialed after the specified number of call attempts on the primary number failed. **No**, **Yes**
Primary Dial No.	up to 16 characters
Alternate Dial No.	up to 16 characters

Main E1/T1 & Sub E1/T1 Port Parameters

➤ **To configure the Main E1/T1 Port Parameters:**

- **Configuration > Port Parameters > Software Configuration...**

  The Port Software Configuration dialog box appears. Parameters for the FCD-E1LC are shown in *Figure 3-17* and *Table 3-9*. Parameters for the FCD-T1LC are shown in *Figure 3-18* and *Table 3-10*.

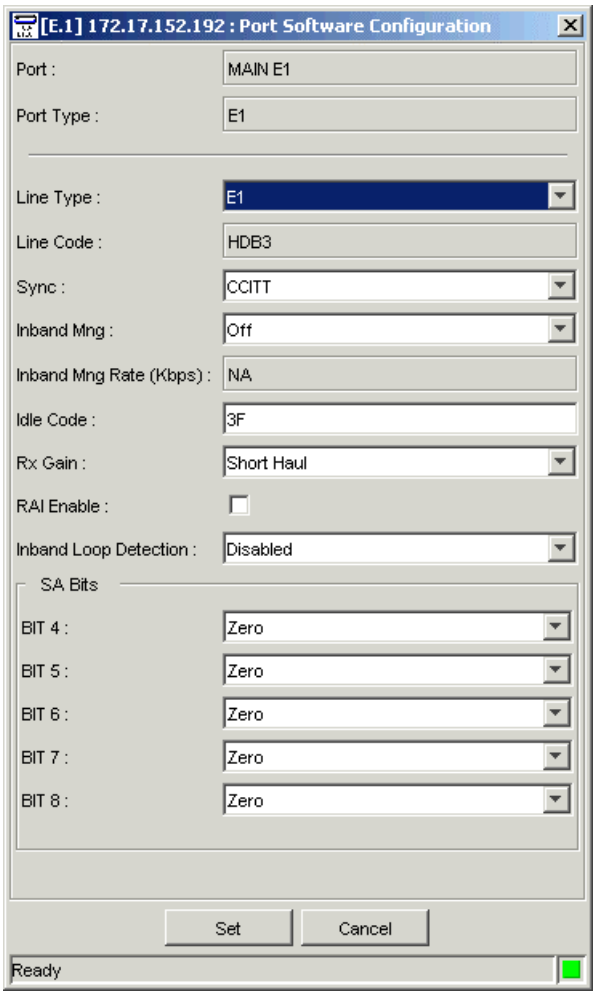


Figure 3-17. Port Software Configuration Parameters – Main & Sub E1

Table 3-9. E1 Port Software Configuration Parameters

Parameter	Possible Values / Remarks
Port	**Main E1, Sub E1**
Port Type	E1
Line Type	Type of E1 line implementing the selected circuit. The type of circuit affects the number of frames that the circuit can carry **E1** (CCITT Rec. G.704 - Table 4a) **E1-CRC** (CCITT Rec. G.704 - Table 4b) **E1-MF** (CCITT Rec. G.704 - Table 4a, with TS16 multiframing enabled) **E1-CRC-MF (**CCITT Rec. G.704 - Table 4b, with TS16 multiframing enabled) **Unframed** (for use when the data being transmitted is unframed) **Note 1:** If the Line Type changed to Unframed, clicking <**Set**> triggers a warning that all of FCD-LC TS connections will be disconnected and the CH Rate set to 0 **Note 2:** If the Line Type is set to Unframed in a single-channel FCD-E1LC, all the MAIN E1 TSs will be connected to this CH. If the Line Type is set to Unframed in a dual-channel FCD-E1LC, all the MAIN E1 timeslots will be connected to CH 2.
Parameter	**Possible Values / Remarks**
Line Code	Line coding method used for zero suppression **HDB3**
Sync	Reduces the time required for the E1 port to return to normal operation after local loss of synchronization **TR-62411** - Complies with AT&T TR-62411 (after 10 seconds) **CCITT** - Complies with CCITT Rec. G.732 **Fast** - after 1 second
Inband Mng	Identifier of the inband management of the selected link **Off**, **FDL or TSO, Dedicated FR**
Inband Mng Rate (Kbps)	Rate of Inband Mng **NA** **4, 8, 12, 16, 20** when Inband Mng is FDL or TSO **64** when Inband Mng is Dedicated FR
Idle Code (hex)	**0..3F..FF**
RX Gain	**Short Haul, Long Haul**
RAI Enable	**Enabled, Disabled** **Note:** RAI Enabled exists only for the Main port when a Sub port exists. Field is disabled if Line Type=Unframed.
Inband Loop Detection (Visible only for MAIN port)	**Disabled**, Enabled

Table 3-9. E1 Port Software Configuration Parameters (Cont.)

CGA	Method used to signal the carrier group alarm (CGA) state to the other end of the selected link: None - Non-transparent mode. When one of the links is in out-of-service state, the time slots carry the appropriate out-of-service code (data/voice OOS) to the other end of the link. Trans - When one of the links is in out-of-service state, the time slots carry the appropriate OOS code to the other end of the link. Signaling bits A and B are not forced into the OOS state. Full - Fully transparent mode. When one of the links is in out-of-service state, the state of the time slots and the state of the signaling bits does not change.
OOS Signal	State of the signaling bits when the link is in out-of-service (OOS) state: **Forced Idle** - Signaling bits A and B are idle when the link is in out-of-service state. In addition, if the line type is ESF, signaling bits C and D are also idle **Forced Busy** - Signaling bits A and B are busy when the link is in out-of-service state. In addition, if the line type is ESF, signaling bits C and D are also busy **Busy Idle** - Signaling bits A and B are busy for 2.5 seconds, then become idle until the out-of-service state ends. In addition, if the line type is ESF, signaling bits C and D are idle for 2.5 seconds before switching to busy state **Idle Busy** - Signaling bits A and B are idle for 2.5 seconds, then become busy until the out-of-service state ends. In addition, if the line type is ESF, signaling bits C and D are busy for 2.5 seconds before switching to idle state **Note:** only for enanled for Sub ports when **Line** Type=**E1-MF or E1-CRC-MF**
OOS (hex)	Out-of-service code transmitted on time slots when the link is out-of-service. This value must be the same for both ports. To change the code, type the required code in the edit box. 00…**7F**…FF **Note:** only for enanled for Sub ports when **Line** Type=**E1-MF or E1-CRC-MF**
SA Bits	
Bit 4 Bit 5 Bit 6 Bit 7 Bit 8	This parameter enables the user to use the TSO Sa Bits 4 to 8 by 3 octets **Zero, One, Management** Each Sa bit is represented by a nibble where: 0000=Zero 0001=One 0010=Management 0011=Transparent Management is available when Inband Mng is FDL or TSO

Note *If you change **Inband Mng** (from any value to Dedicated FR, or from Dedicated FR to FDL or TSO), a message is displayed: "Changing Inband Mng to/from Dedicated FR, may need resetting the device after performing Update".*

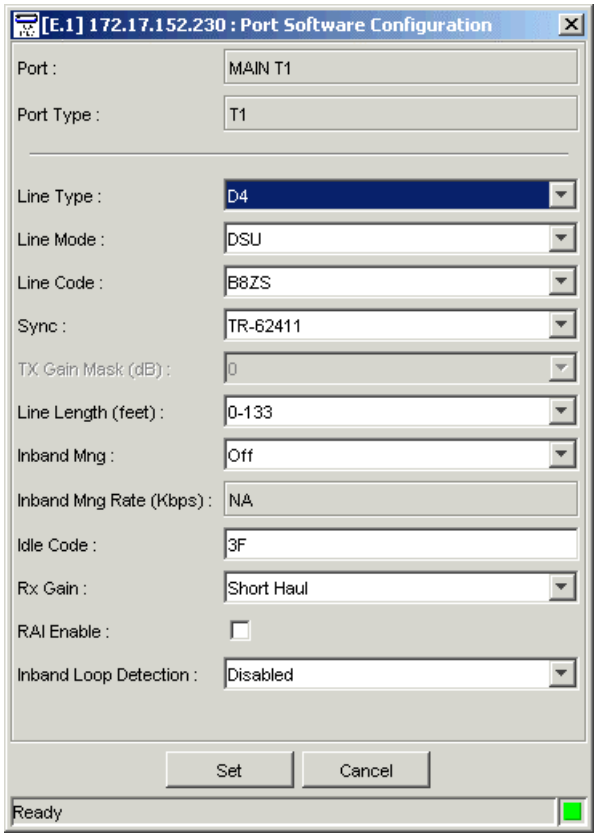


Figure 3-18. Port Software Configuration Parameters – Main & SubT1

Table 3-10. T1 Port Software Configuration Parameters

Parameter	Possible Values / Remarks
Port	**Main T1, Sub T1**
Port Type	T1
Line Type	Type of T1 line implementing the selected circuit. The type of circuit affects the number of frames that the circuit can carry. **ESF** (Extended Superframe DS1) - 24 frames per multiframe **D4** (AT&T D4 format DS1) - 12 frames per multiframe **Unframed** (for use when the data being transmitted is unframed) ***Note 1*:** If the Line Type changed to Unframed, clicking <**Set**> triggers a warning that all of FCD-LC TS connections will be disconnected and the CH Rate set to 0 ***Note 2*:** If the Line Type is set to Unframed in a single-channel FCD-T1LC, all the MAIN T1 TSs will be connected to this CH. If the Line Type is set to Unframed in a dual-channel FCD-T1LC, all the MAIN T1 timeslots will be connected to CH 2.
Line Mode	Line mode for selected port: **CSU**, **DSU**

Table 3-10. T1 Port Software Configuration Parameters (Cont.)

Parameter	Possible Values / Remarks
Line Code	Line coding method used for zero suppression **B7** – B7ZS coding, Jammed Bit zero suppression. A pulse is forced in bit 8 of each 8-bit period of each channel. Therefore, only 7 bits per channel (1.344 Mbps) is available for data. **B8ZS** – B8ZS coding. A specified pattern of normal bits and bipolar variations replaces a sequence of 8 zero bits. This option provides clear channel capability. **Trans** – Transparent (AMI) coding. No zero suppression is present.
Sync	Reduces the time required for the T1 port to return to normal operation after local loss of synchronization **TR-62411** - Complies with AT&T TR-62411 (after 10 seconds) **Fast** - after 1 second
TX Gain Mask (dB)	This field is enabled only if Line Mode is CSU. **0**, **7.5**, **15**, **22.5**
Line Length (feet)	This field is enabled only if Line Mode is DSU. **0-133, 134-266, 267-399, 400-533, 534-655**

Parameter	Possible Values / Remarks
Inband Mng	Identifier of the inband management of the selected link: **Off**, **FDL or TSO, Dedicated FR.** ***Note*:** When Inband Mng=FR, do not set Line Code=B7, this will cause an error message when a sanity check is performed.
Inband Mng Rate (kbps)	Rate of Inband Mng: **NA** when Inband Mng is Off **4** when Inband Mng is **FDL** or **TSO** **64** when Inband Mng is **Dedicated FR**
Idle Code (hex)	Hexadecimal code transmitted to fill idle (unused) time slots in frames transmitted through the selected port. To change the code, type the required code in the edit box **00** – **FF**
Rx Gain	**Short Haul, Long Haul**
RAI Enable	**Enabled, Disabled** **Note:** RAI Enabled exists only for the Main port when a Sub port exists. Field is disabled if Line Type=Unframed.
Inband Loop Detection	**Enabled, Disabled** **Note:** Visible only for the Main port

Note *If you change **Inband Mng** (from any value to Dedicated FR, or from Dedicated FR to FDL or TSO), a message is displayed: "Changing Inband Mng to/from Dedicated FR, may need resetting the device after performing Update".*

CH 1, CH 2 Port Configuration

➤ **To view Channel Port Configuration:**

- **Configuration** > **Port Parameters** > **Software Configuration…**

The Port Software Configuration dialog box appears.

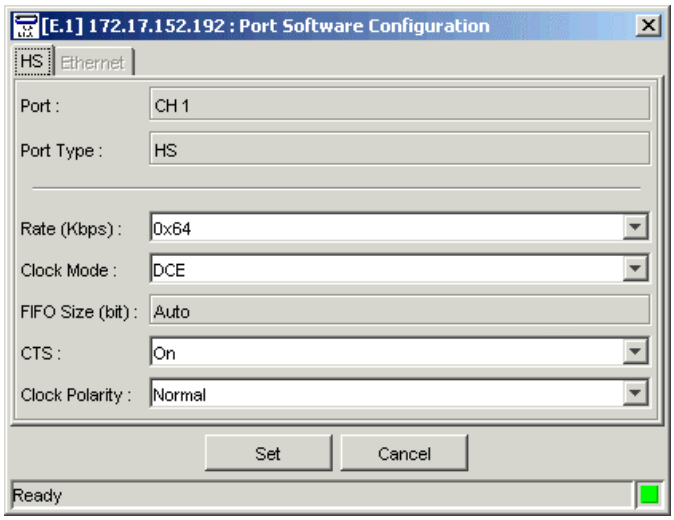


Figure 3-19. Port Software Configuration Dialog Box – CH 1

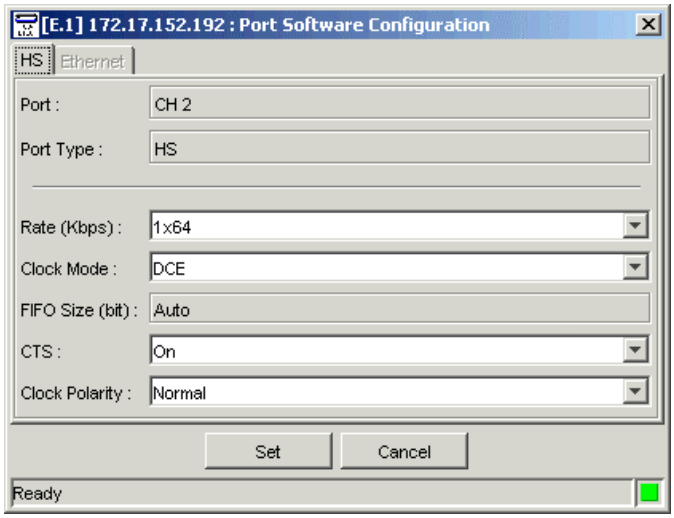


Figure 3-20. Port Software Configuration Dialog Box – CH 2, HS Tab

3. Change the parameters as required and click <**Set**>.

   The parameters are changed to the new values.

Note *If the existing rate does not match the FIFO Size, the following message appears on the Status Bar: "FIFO Size – Rate mismatch" and Set operation is not performed until you match the FIFO size and the data channel rate.*

Table 3-11. CH 1, CH 2 Port Configuration Parameters – HS Tab

Parameter	Possible Values / Remarks
Rate (Kbps)	**nx64, nx54** where n=value selected in TS Assignment ***Note:*** *For Main E1 or T1 link with Line Type=Unframed, Rate=0x64*
Clock Mode	The clock mode **DCE, DTE1, DTE2** ***Note:*** 1. When mode=Unframed, Clock Mode cannot be DTE2. 2. If the Ethernet interface is IR-IP or IR-ETH/QN, Clock Mode can be only DCE.
FIFO Size (bit)	The available options depend on the Clock Mode: **Auto**, **16**, **30**, **52, 72** for DTE2 mode, **Auto** for DCE and DTE1 modes.
CTS	**On, =RTS, NA** ***Note:*** If the Ethernet interface is IR-IP or IR-ETH/QN, Clock Mode is always NA.
Clock Polarity	**Normal**, **Invert** for HS ports, **Normal** for Ethernet ports.

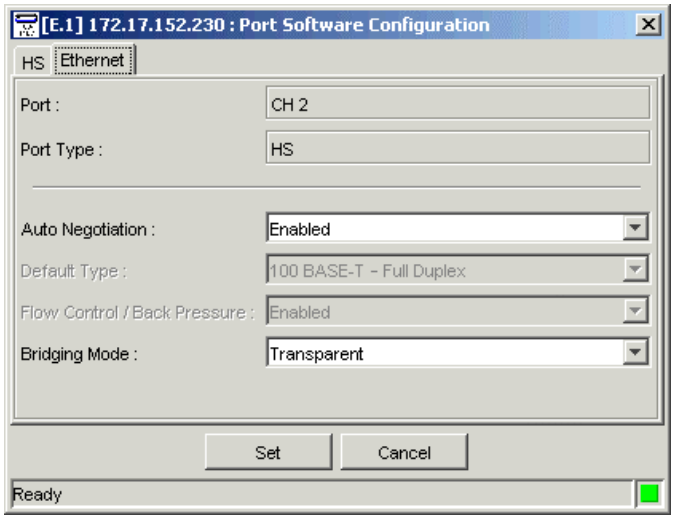


Figure 3-21. Port Software Configuration Dialog Box – CH 2, Ethernet Tab

Table 3-12. CH 2 Port Software Configuration Parameters – Ethernet Tab

Parameter	Possible Values / Remarks
Auto Negotiation	**Enabled**, **Disabled**
Default Type	**10BaseT-Half Duplex**, **10BaseT-FullDuplex**, **100BaseT-Half Duplex**, **100BaseT-Full Duplex**
Flow Dontrol/Back Pressure	**Enabled**, **Disabled** **Note:** Field is enabled only when Auto Negotiation is Disabled
Bridging Mode	Filtered, **Transparent**

3.4 Port Level – Agent Menu

Displaying Port Information

The **Information** command displays hardware configuration information and status data of the selected port.

➤ **To display port Information:**

- **Configuration** > **Port Parameters** > **Information…**

  The Port Information dialog box appears. The information displayed is read-only and differs for each port type.

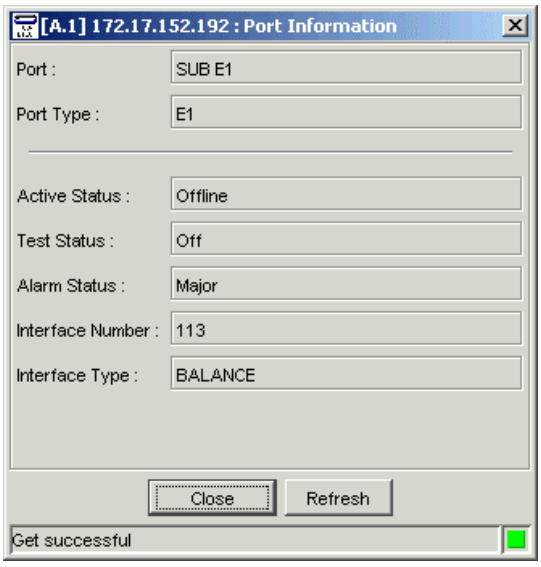


Figure 3-22. Sample Port Information

Displaying Port Configuration

Control Port Configuration

➤ **To view Control Port Configuration:**

- **Configuration** > **Port Parameters > Software Configuration > SP** tab.

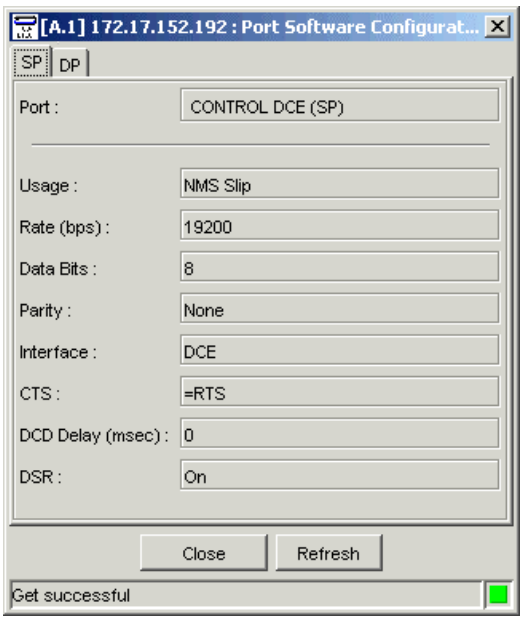


Figure 3-23. Port Software Configuration Dialog Box – SP

Table 3-13. Port Software Configuration Parameters – SP

Parameter	Possible Values / Remarks
Usage	Function of the selected port **NMS Slip, NMS PPP, Agent Slip, Terminal**
Rate (bps)	When Usage=Terminal: **Auto, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200** When Usage≠Terminal: **1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200**
Data Bits	Number of data bits in the word format transmitted through the selected port **7, 8**
Parity	Parity mode used by the selected port **None**, **Odd, Even**
Interface	Type of supervisory port interface **DCE** for direct connection to supervision terminal **DTE** for connection through a modem to supervision terminal
CTS	State of the CTS (Clear to Send) line in the selected port **On** – CTS is always on **=RTS** – CTS line follows the local RTS line

Table 3-13. Port Software Configuration Parameters – SP (Cont.)

Parameter	Possible Values / Remarks
DCD Delay (msec)	Time delay between Data Carrier Detection (DCD) and the sending of the data if the interface type is DTE **0**, **10**, **50**, **100**, **200, 300**
DSR	State of the DSR line **On** – DSR line is continuously on **=DTR** – DSR line tracks the DTR line

➤ **To view DP parameters:**

- **Configuration** > **Port Parameters > Software Configuration > DP** tab.

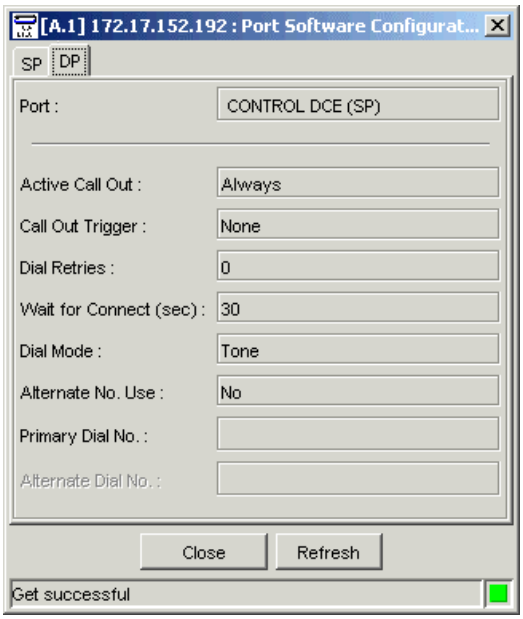


Figure 3-24. Port Software Configuration Dialog Box – DP

Table 3-14. Port Software Configuration Parameters – DP

Parameter	Possible Values / Remarks
Active Call Out	Specifies when callout will be activated: **Always**, **Upon Link Fail**
Call Out Trigger	Controls the use of the call-out trigger: **None**, **All Alarms**, **Major Alarms**
Dial Retries	0 ..8

Table 3-14. Callout Parameters (DP Tab) (Cont.)

Parameter	Possible Values / Remarks
Wait for Connect (sec)	Specifies the time FCD-E1LC/FCD-T1LC will wait for an answer after each dialing attempt. **30**, **45**, **60**
Dial Mode	Selects the dialing mode supported by the telephone network: **Tone**, **Pulse**
Alternate No. Use	Specifies if the alternate number will be dialed after the specified number of call attempts on the primary number failed. **No**, **Yes**
Primary Dial No.	up to 16 characters
Alternate Dial No.	up to 16 characters

Main E1/T1 & Sub Port Software

➤ **To display Software Port Configuration:**

- **Configuration** > **Port Parameters** > **Software Configuration...**

  The Port Software Configuration dialog box appears. Parameters for the FCD-E1LC are shown in *Figure 3-25* and *Table 3-15*. Parameters for the FCD-T1LC are shown in *Figure 3-26* and *Table 3-16*.

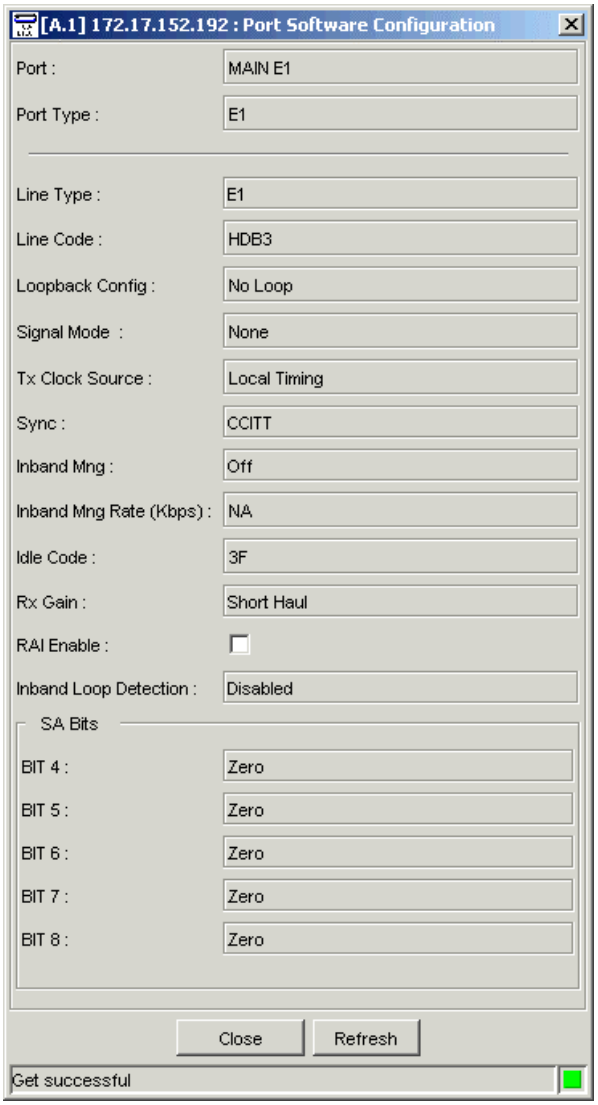


Figure 3-25. Port Software Configuration Parameters – Main E1

Table 3-15. E1 Port Software Configuration Parameters

Parameter	Possible Values / Remarks
Port	**Main E1**
Port Type	E1
Line Type	Type of E1 line implementing the selected circuit. The type of circuit affects the number of frames that the circuit can carry **E1** (CCITT Rec. G.704 - Table 4a) **E1-CRC** (CCITT Rec. G.704 - Table 4b) **E1-MF** (CCITT Rec. G.704 - Table 4a, with TS16 multiframing enabled) **E1-CRC-MF (**CCITT Rec. G.704 - Table 4b, with TS16 multiframing enabled) **Unframed** (for use when the data being transmitted is unframed) **Note 1:** If the Line Type changed to Unframed, clicking <Set> triggers a warning that all of FCD-LC TS connections will be disconnected and the Rate set to 0 **Note 2:** If the Line Type is set to Unframed in a single-channel FCD-E1LC, all the MAIN E1 TSs will be connected to this CH. If the Line Type is set to Unframed in a dual-channel FCD-E1LC, all the MAIN E1 timeslots will be connected to CH 2.
Line Code	Line coding method used for zero suppression **HDB3**
Loopback Config	Loopback configuration of the selected port **No Loop** – Not in loopback state **Payload Loop** – Received signal at this port is looped through the DXC. The signal is typically looped back for transmission after passing through the agent's framing function **Line Loop** – Received signal at this port does not go through the agent (minimum penetration) but is looped back out **Other Loop** – Any loopback on the selected port that is undefined by the port's configuration
Signal Mode	Type of signaling transfer mode used by the selected card **None, Bit Oriented**
Tx Clock Source	Source of the card's transmit clock **Loop Timing** – Recovered receive clock is the transmit clock **Local Timing** – Local clock source is the transmit clock **Through Timing** – Receive clock recovered from another port is used as the transmit clock of the selected port
Sync	Reduces the time required for the E1 port to return to normal operation after local loss of synchronization **TR-62411** - Complies with AT&T TR-62411 (after 10 seconds) **CCITT** - Complies with CCITT Rec. G.732 **Fast** - after 1 second
Inband Mng	Identifier of the inband management of the selected link **Off**, **FDL or TSO, Dedicated FR**

Table 3-15. E1 Port Software Configuration Parameters (Cont.)

Parameter	Possible Values / Remarks
Inband Mng Rate (Kbps)	Rate of Inband Mng **NA** **4, 8, 12, 16, 20** when Inband Mng is FDL or TSO **64** when Inband Mng is Dedicated FR
Idle Code (hex)	**0..3F..FF**
RX Gain	**Short Haul, Long Haul**
RAI Enable	**Enabled, Disabled** **Note:** RAI Enabled exists only for the Main port when a Sub port exists. Field is disabled if Line Type=Unframed.
Inband Loop Detection (Visible only for MAIN port)	**Disabled**, Enabled
CGA	Method used to signal the carrier group alarm (CGA) state to the other end of the selected link: None - Non-transparent mode. When one of the links is in out-of-service state, the time slots carry the appropriate out-of-service code (data/voice OOS) to the other end of the link. Trans - When one of the links is in out-of-service state, the time slots carry the appropriate OOS code to the other end of the link. Signaling bits A and B are not forced into the OOS state. Full - Fully transparent mode. When one of the links is in out-of-service state, the state of the time slots and the state of the signaling bits does not change.
OOS Signal	State of the signaling bits when the link is in out-of-service (OOS) state: **Forced Idle** - Signaling bits A and B are idle when the link is in out-of-service state. In addition, if the line type is ESF, signaling bits C and D are also idle **Forced Busy** - Signaling bits A and B are busy when the link is in out-of-service state. In addition, if the line type is ESF, signaling bits C and D are also busy **Busy Idle** - Signaling bits A and B are busy for 2.5 seconds, then become idle until the out-of-service state ends. In addition, if the line type is ESF, signaling bits C and D are idle for 2.5 seconds before switching to busy state **Idle Busy** - Signaling bits A and B are idle for 2.5 seconds, then become busy until the out-of-service state ends. In addition, if the line type is ESF, signaling bits C and D are busy for 2.5 seconds before switching to idle state **Note:** only for enanled for Sub ports when **Line** Type=**E1-MF or E1-CRC-MF**
OOS (hex)	Out-of-service code transmitted on time slots when the link is out-of-service. This value must be the same for both ports. To change the code, type the required code in the edit box. 00…**7F**…FF **Note:** only for enanled for Sub ports when **Line** Type=**E1-MF or E1-CRC-MF**
Inband Mng Rate (Kbps)	Rate of Inband Mng **NA** when Inband Mng is Off/FDL or TSO **64** when Inband Mng is Dedicated FR
SA Bits	

Bit 4	This parameter enables the user to use the TSO Sa Bits 4 to 8 by 3 octets
Bit 5	**Zero, <u>One</u>, Management, Transparent**
Bit 6	Each Sa bit is represented by a nibble where:
Bit 7	0000=Zero
Bit 8	0001=One
	0010=Management
	0011=Transparent
	Management is available when Inband Mng is FDL or TSO

Note *If you change **Inband Mng** (from any value to Dedicated FR, or from Dedicated FR to FDL or TSO), a message is displayed: "Changing Inband Mng to/from Dedicated FR, may need resetting the device after performing Update".*

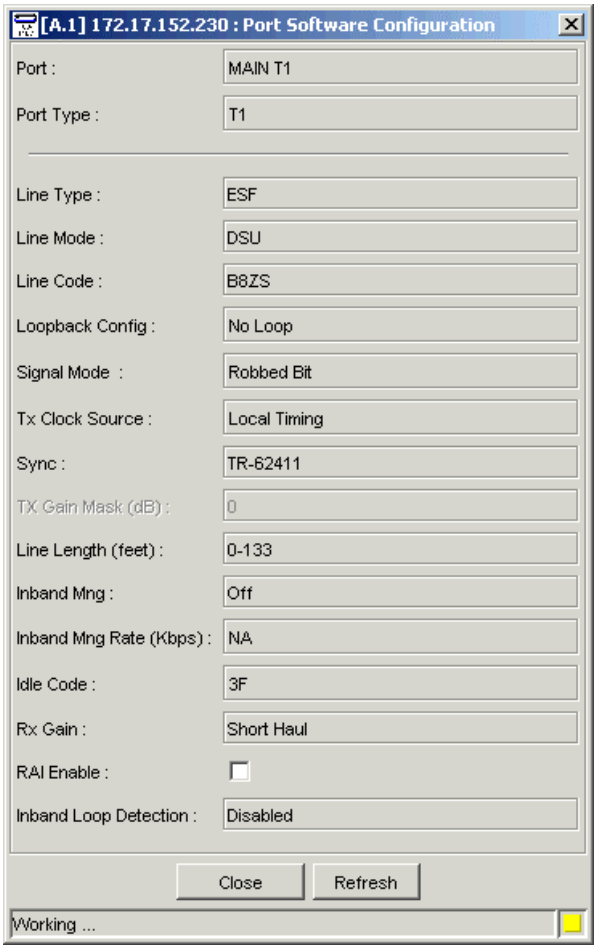


Figure 3-26. Port Software Configuration Parameters – Main T1

Table 3-16. T1 Port Software Configuration Parameters

Parameter	Possible Values / Remarks
Port	**Main T1**
Port Type	T1
Line Type	Type of T1 line implementing the selected circuit. The type of circuit affects the number of frames that the circuit can carry. **ESF** (Extended Superframe DS1) - 24 frames per multiframe **D4** (AT&T D4 format DS1) - 12 frames per multiframe **Unframed** (for use when the data being transmitted is unframed) ***Note 1*:** If the Line Type changed to Unframed, clicking <**Set**> triggers a warning that all of FCD-LC TS connections will be disconnected and the Rate set to 0 ***Note 2*:** If the Line Type is set to Unframed in a single-channel FCD-T1LC, all the MAIN T1 TSs will be connected to this CH. If the Line Type is set to Unframed in a dual-channel FCD-T1LC, all the MAIN T1 timeslots will be connected to CH 2.
Line Mode	Line mode for selected port: **CSU** or **DSU**
Line Code	Line coding method used for zero suppression **B7** – B7ZS coding, Jammed Bit zero suppression. A pulse is forced in bit 8 of each 8-bit period of each channel. Therefore, only 7 bits per channel (1.344 Mbps) is available for data. **B8ZS** – B8ZS coding. A specified pattern of normal bits and bipolar variations replaces a sequence of 8 zero bits. This option provides clear channel capability. **Trans** – Transparent (AMI) coding. No zero suppression is present.
Loopback Config	Loopback configuration of the selected port **No Loop** – Not in loopback state **Payload Loop** – Received signal at this port is looped through the FCD-LC. The signal is typically looped back for retransmission after passing through the agent's framing function **Line Loop** – Received signal at this port does not go through the agent (minimum penetration) but is looped back out **Other Loop** – Any loopback on the selected port that is undefined by the port's configuration
Signal Mode	Type of signaling transfer mode used by the selected card: **Robbed Bit**
Tx Clock Source	Source of the card's transmit clock: **Loop Timing** – Recovered receive clock is the transmit clock **Local Timing** – Local clock source is the transmit clock **Through Timing** – Receive clock recovered from another port is used as the transmit clock of the selected port

Table 3-16. T1 Port Software Configuration Parameters (Cont.)

Parameter	Possible Values / Remarks
Sync	Reduces the time required for the T1 port to return to normal operation after local loss of synchronization **TR-62411** - Complies with AT&T TR-62411 (after 10 seconds) **Fast** - after 1 second
TX Gain Mask (dB)	This field is enabled only if Line Mode is CSU. **0**, **7.5**, **15**, **22.5**
Line Length (feet)	This field is enabled only if Line Mode is DSU. **0-133, 134-266, 267-399, 400-533, 534-655**
Inband Mng	Identifier of the inband management of the selected link: **Off**, **FDL or TSO, Dedicated FR.** ***Note*:** When Inband Mng=FR, do not set Line Code=B7, this will cause an error message when a sanity check is performed.
Inband Mng Rate (kbps)	Rate of Inband Mng: **NA** when Inband Mng is Off **4** when Inband Mng is **FDL** or **TSO** **64** when Inband Mng is **Dedicated FR**
Idle Code (hex)	Hexadecimal code transmitted to fill idle (unused) time slots in frames transmitted through the selected port. To change the code, type the required code in the edit box **00** – **FF**
Rx Gain	**Short Haul, Long Haul**
RAI Enable	**Enabled, Disabled** **Note:** RAI Enabled exists only for the Main port when a Sub port exists. Field is disabled if Line Type=Unframed.
Inband Loop Detection	**Enabled, Disabled** **Note:** Visible only for the Main port

CH Port Configuration

➤ **To view Channel Port Configuration:**

- **Configuration** > **Port Parameters** > **Software Configuration…**

  The Port Software Configuration dialog box appears.

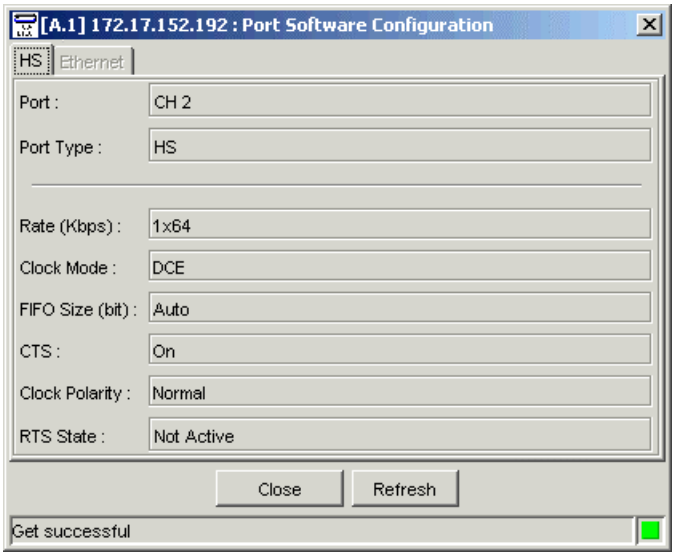


Figure 3-27. Port Software Configuration Dialog Box – CH 1

Note *CH 2 configuration parameters are the same as for CH 1, with the only difference that there is no Inband Loop Detection parameter.*

Table 3-17. CH 1, CH 2 Parameters – HS Tab

Parameter	Possible Values / Remarks
Rate (Kbps)	**nX56, nX64, 0x64 (Line Type=Unframed)**
Clock Mode	The clock mode **DCE, DTE1, DTE2**
FIFO Size (bit)	The available options depend on the Clock Mode **Auto, 16, 30, 52, 72**
CTS	**On, =RTS, NA**
Clock Polarity	**Normal**, **Invert** for HS ports, **Normal** for Ethernet ports.
RTS State	State of the RTS (Request–to–Send) line in the selected port **Not Active, Active**

If an Ethernet port is installed instead of CH 2, you can view its parameters under the Ethernet tab.

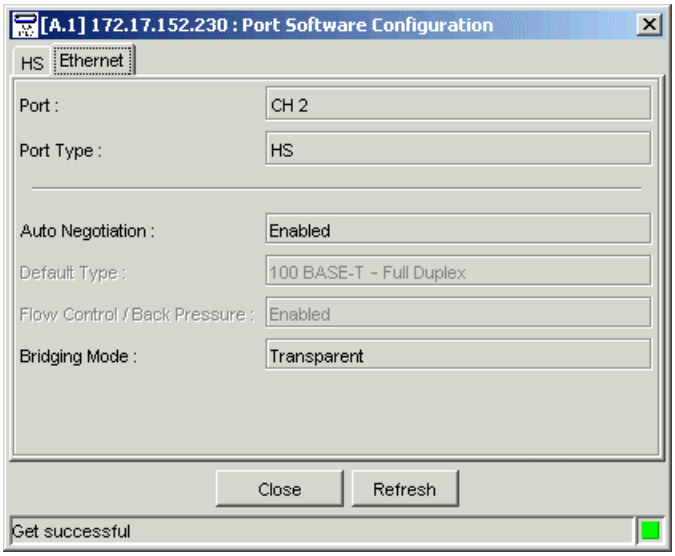


Figure 3-28. Ethernet Parameters Dialog Box – CH 2

Table 3-18. ETH Tab Parameters

Parameter	Possible Values / Remarks
Auto Negotiation	Enabled, Disabled
Default Type	10 BASE-T – Half Duplex, 10 BASE-T – Full Duplex, 100 BASE-T – Half Duplex, **100 BASE-T – Full Duplex** **Note:** Enabled only when **Auto Negotiation=Disabled**
Flow Control / Back Pressure	Enabled, Disabled **Note:** Enabled only when **Auto Negotiation=Disabled**
Bridging Mode	**Filtered, Transparent**

Configuring Callout Destinations

Note *Callout Destinations are available for the SP port only.*

➤ **To configure callout destinations:**

1. **Configuration > Call Out Destinations…**
   The Callout Destinations dialog box appears.
2. Click a destination and change the IP Address.
3. Click <**Set**>.
   Changed entries are colored.

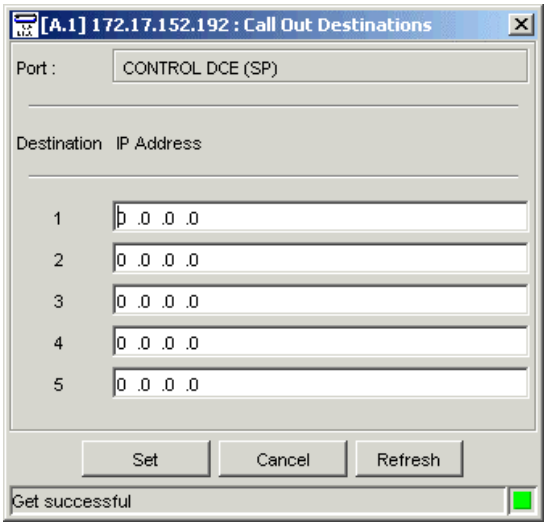


Figure 3-29. Callout Destinations

Table 3-19. Call Out Destinations Parameters

Parameter	Possible Values / Notes
Port	**CONTROL DCE (SP)**
Destination	**1** to **5**
IP Address	IP Address of Destination **0.0.0.0, ..., 255.255.255.255**

Chapter 4
Performance Monitoring

4.1 System – Edit Menu

Polling the Agent

Polling immediately updates the Agent view and Agent statuses.

Note *Polling is enabled only in the Edit Configuration View.*

➤ **To poll the agent:**

- **Configuration > Poll Agent**.

  Or

- Click the shortcut key on the toolbar .

  The system polls the agent immediately and updates the parameters accordingly.

4.2 System – Agent Menu

Displaying G.826 Statistics

➤ **To display G.826 current Data:**

- **Statistics > G.826 Data...**

  The G.826 Current Data dialog box appears.

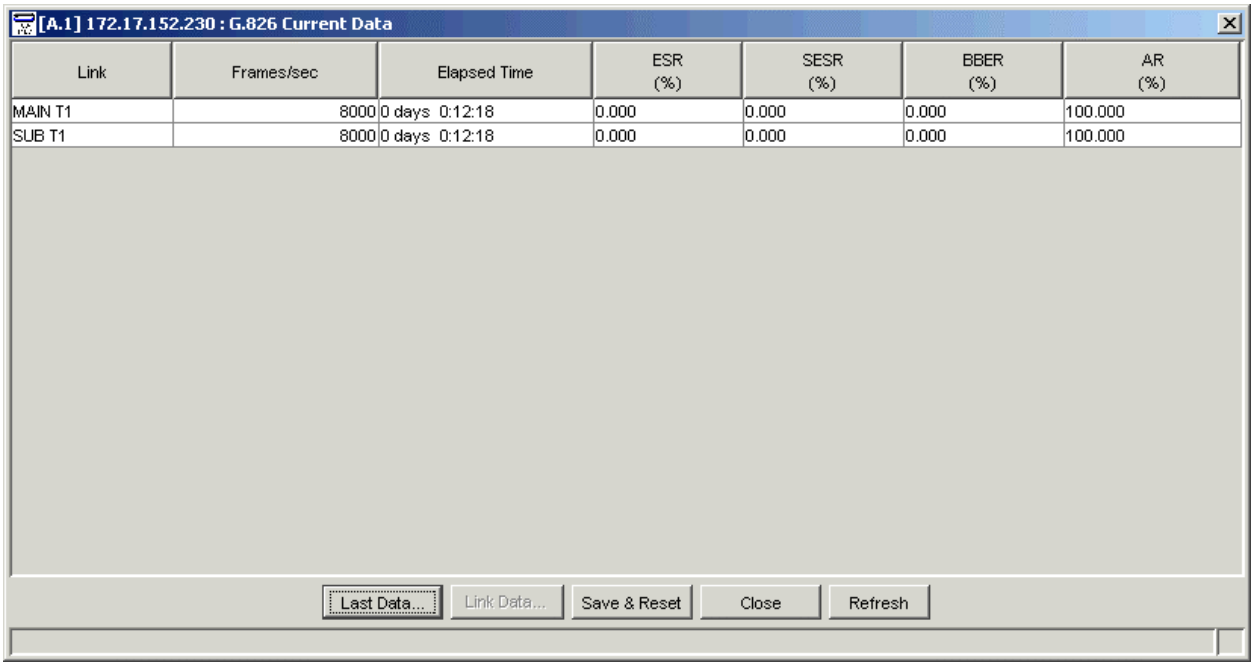


Figure 4-1. G.826 Current Data

Displaying G.826 Current Data Statistics

➤ **To display current link data:**

- Select an entry in the **G.826 Current Data** list and click **Link Data…**

The Link Data dialog box appears.

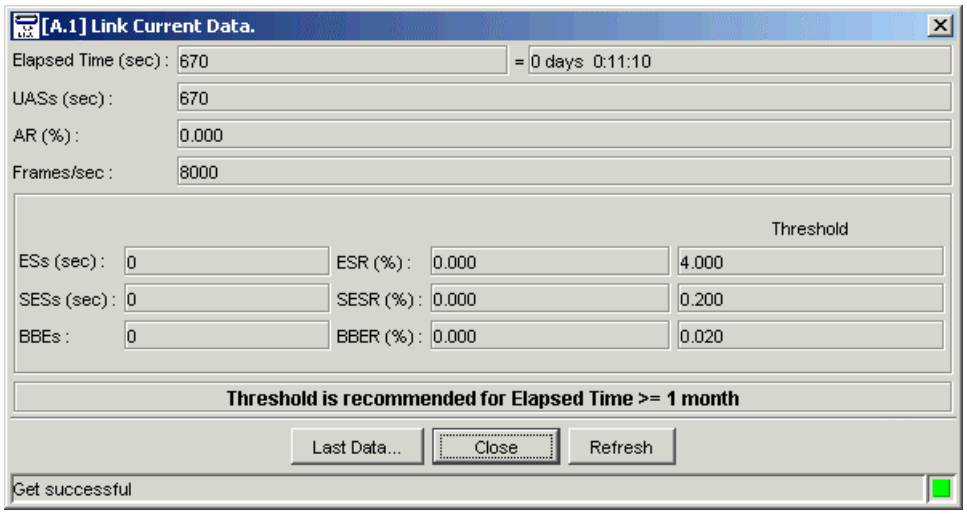


Figure 4-2. Link Current Data

Displaying G.826 Last Data Statistics

➤ **To display the last data for a specific link:**

- Select an entry in the **G.826 Current Data** list and click **Last Data…**

The Link Last Data dialog box appears.

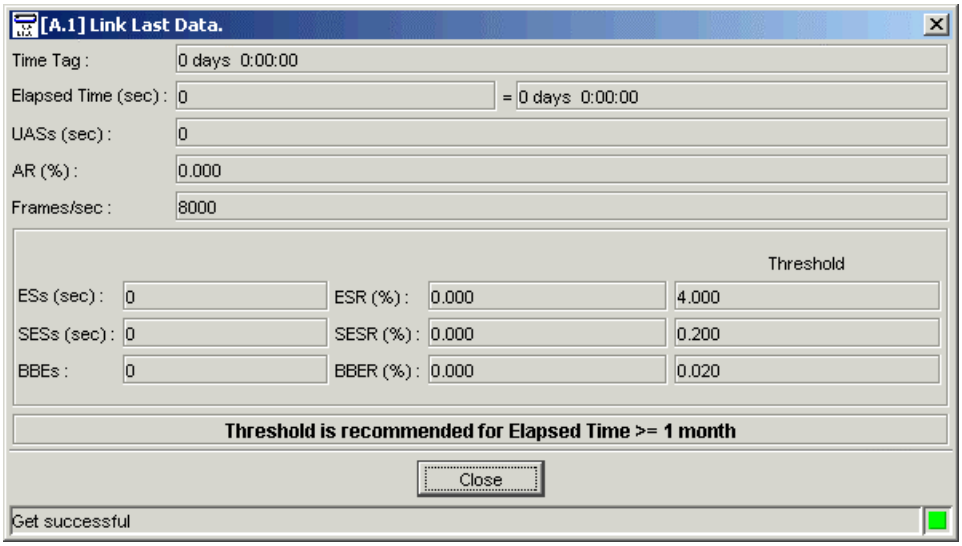


Figure 4-3. Link Last Data

Saving G.826 Statistics

You can save data for entries in the list.

➤ **To Save & Reset G.826 statistics:**

1. Click <**Save & Reset**>.

   The confirmation dialog box appears with the message "Resetting G.826 Current Data of Main E1/T1 Link" appears.

2. Click <**OK**> to confirm the Save & Reset.

4.3 Port – Edit Menu

There are no performance monitoring tasks at this level.

4.4 Port – Agent Menu

Viewing Port Statistics

Note *1. Port Level Statistics is available for E1/T1 Main ports only and varies according to the type of the selected port.*
2. Port Statistics is available for E1 line types: E1, E1–MF (not CRC) and for T1 line type D4 (not ESF) only.

➤ **To view port status statistics:**

- **Statistics > Port Statistics...**

The Port Statistics dialog box appears:

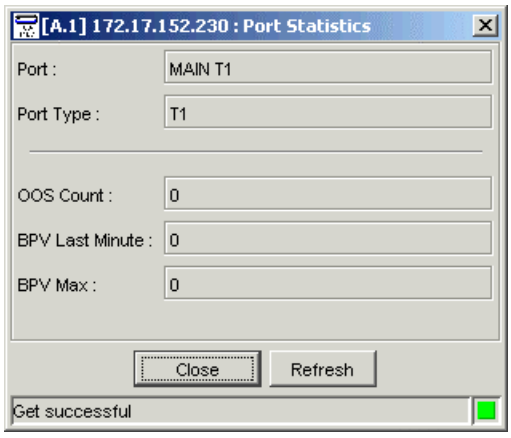


Figure 4-4. Port Statistics

Table 4-1. Port Statistics

Parameter	Possible Values / Remarks
Port	**Main E1, Sub E1, Main T1, Sub E1**
Port Type	**E1, T1**
OOS Count	Number of detected frame alignment loss events since the last time the counter was cleared
BPV Last Minute	Number of BPV (bipolar variation) events detected in the last minute
BPV Max	Highest total of BPV events detected during any one-minute interval since the last time the counter was cleared

Viewing Port Performance Data

Note *Port Performance Data is available for E1 line types: E–CRC, E1–CRC–MF (with CRC) and for T1 line type D4 only.*

You can view a selected 15-minute interval or cumulative totals of the data from the previous 24 hours.

Polling Interval

➤ **To select the Polling Interval:**

- **Statistics > Port Performance > Polling Interval...**

The Polling Interval dialog box appears.

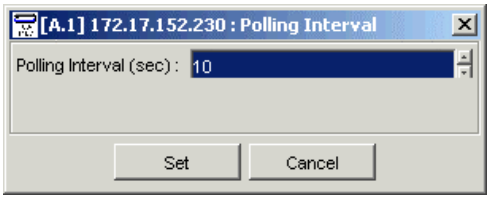


Figure 4-5. Polling Interval – E1 – Agent

Table 4-2. Polling Interval Parameters

Parameter	Possible Values / Notes
Polling Interval (sec)	**5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60**

Displaying Current Data Table and Graph

➤ **To display the Current Data Table and Graph:**

- **Statistics > Port Performance > Current Data…**

The Current Data dialog box appears:

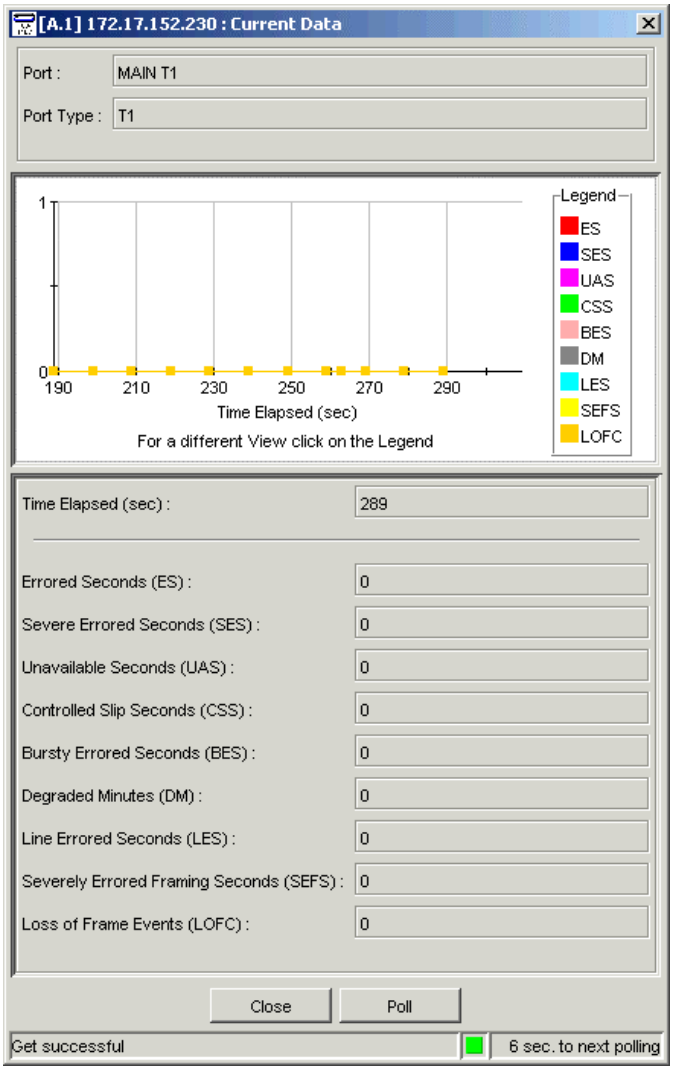


Figure 4-6. Current Data

Table 3-3. Port Performance Current Data

Parameter	Possible Values / Remarks
Port	**Main E1, Main T1, Sub E1, Sub T1**
Port Type	**E1, T1**
Current Data	Group of data fields which describe the amount of time that error(s) exist(s) in the current measurement interval. Each interval is 15 minutes
Time Elapsed (sec)	Number of seconds since the beginning of the current interval **0..899**
Errored Seconds (ES)	Number of seconds in the current interval in which an event or alarm occurred **0..899**
Severe Errored Seconds (SES)	Number of seconds in the current interval in which at least 320 CRC events or one OOF event occurred **0..899**
Parameter	**Possible Values / Remarks**
Unavailable Seconds (UAS)	Number of seconds in the current interval in which a failed signal state exists. A failed signal state occurs after 10 consecutive severe errored seconds. This state is cleared only after FCD-LC processes 10 consecutive seconds of data without an SES **0..899**
Controlled Slip Seconds (CSS)	Number of seconds in the current interval in which at least one controlled SLIP event occurred **0..899**
Bursty Errored Seconds (BES)	Number of seconds in the current interval in which 2 - 319 CRC events occurred **0..899**
Degraded Minutes (DM)	Number of minutes in the current interval in which the bit error rate (BER) exceeded $1x10^{-6}$ **0..899**
Line Errored Seconds (LES)	Number of seconds in which one or more Line Code Violation events were detected **0..899**
Severely Errored Framing Seconds (SEFS)	Number of seconds with 320 or more OOF events or one or more AIS event **0..899**
Loss of Frame Events (LOFC)	**1…96**

Displaying Interval Table and Graph

➤ **To display the Interval Table and Graph:**

- **Statistics > Port Performance** followed by **Interval Data**.

  The Interval Data dialog box appears.

The first line of the table in the screen below the graph (Total) sums the statistical data over the intervals elapsed in the last 24 hours or since the last reset of the device.

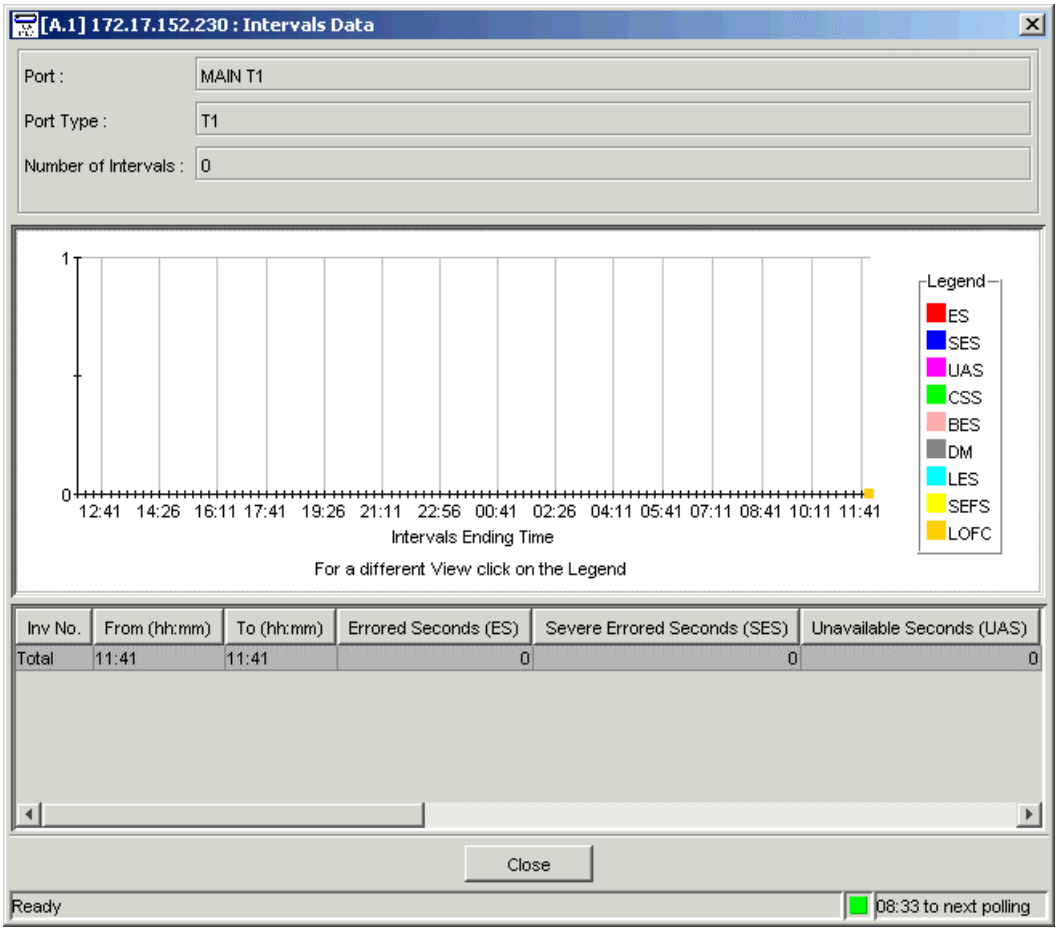


Figure 4-7. Intervals Data

Table 3-4. Port Performance Interval Data (Additional Parameters)

Parameter	Possible Values / Remarks
Number of Intervals	Total number of 15-min intervals elapsed in the last 24 hours or since the last device reset (0..96)
Inv No.	Number of the interval
From (hh:mm:ss)	Starting time of the interval
To (hh:mm:ss)	End time of the interval
Errored Seconds (ES)	Number of seconds in the current interval in which an event or alarm occurred
Severe Errored Seconds (SES)	Number of seconds in the current interval in which at least 320 CRC events or one OOF event occurred
Unavailable Seconds (UAS)	Number of seconds in the current interval in which a failed signal state exists. A failed signal state occurs after 10 consecutive severe errored seconds. This state is cleared only after FCD-LC processes 10 consecutive seconds of data without an SES
Controlled Slip Seconds (CSS)	Number of seconds in the current interval in which at least one controlled SLIP event occurred

Bursty Errored Seconds (BES)	Number of seconds in the current interval in which 2 - 319 CRC events occurred
Degraded Minutes (DM)	Number of minutes in the current interval in which the bit error rate (BER) exceeded 1x10-6
Line Errored Seconds (LES)	Number of seconds in which one or more Line Code Violation events were detected
Severely Errored Framing Seconds (SEFS)	Number of seconds with 320 or more OOF events or one or more AIS event
Loss of Frame Events (LOFC)	

Reset Statistics

➤ **To reset statistics:**

- **Statistics > Port Performance** > **Reset Statistics**

  The following message appears, "Resetting <MAIN or SUB> Port's Intervals". Click <OK> to confirms reset.

Displaying FDL Rx Messages (FCD-T1LC only)

You can view active FDL (Facility Data Link) Rx messages that have passed through the Main T1 port of the FCD-T1LC, provided it is configured to **Line Type**=**ESF**.

➤ **To view FDL Rx messages:**

1. Select the Main T1 port.
2. **Statistics > FDL Message** > **Rx**.

The Port FDL Rx Message dialog box appears.

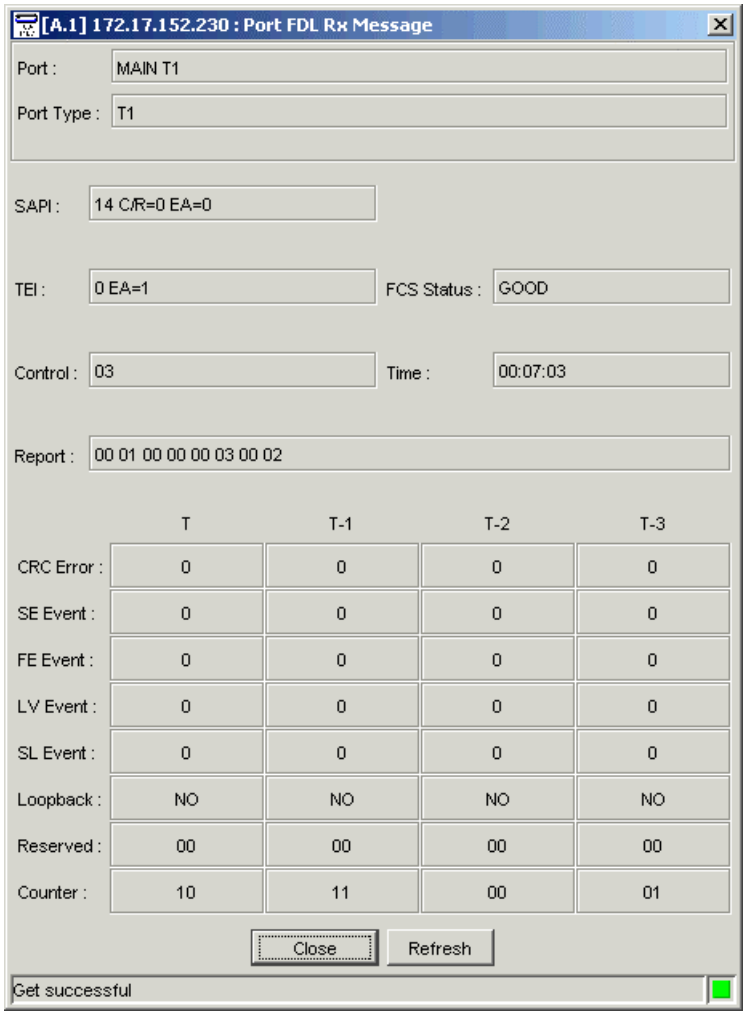


Figure 4-8. FDL Rx Message Dialog Box

Table 3-5. Port FDL Rx Message

Parameter	Possible Values / Remarks
Port	Main T1, Sub T1
Port Type	T1
SAPI	Service Access Point Identifier
TEI	Terminal End Point Identifier
Control	One byte (00 through FF)
Report	Eight bytes that carry the message contents
FCS Status	Indicates whether the FCS (Frame Check Sequence) message is **Good** or **Bad** (message probably contains an error)
Time	Time when the message was received at the management terminal: HH:MM:SS, where HH = hours, MM = minutes, SS = seconds
Interpretation	

Table 4-5. Port FDL Rx Message (Cont.)

Parameter	Possible Values / Remarks
	The following fields contain the contents of the four latest FDL messages (**T, T-1, T-2, T-3**)
CRC Error	Number of CRC errors, specified in one of the following ranges: **None, 1 - 5, 5 - 10, 10 - 100, 100 - 319, 320** or more
SE Event	Severely errorred framing event: **0, 1** or more
FE Event	Frame synchronization bit error event: **0, 1** or more
LV Event	Line code violation event: **0, 1** or more
SL Event	Controlled SLIP event: **0, 1** or more
Loopback	Loopback on information bits (payload): **Yes**, **No**
Reserved	Reserved for future use, if needed
Counter	1-second report modulo-4 counter

Chapter 5

Configuring a Typical Application

This chapter provides detailed instructions for setting up a typical application using two FCD-E1LC units.

5.1 Overview

Application

The section provides detailed instructions for configuring two FCD-E1LCs on an E1 Network.

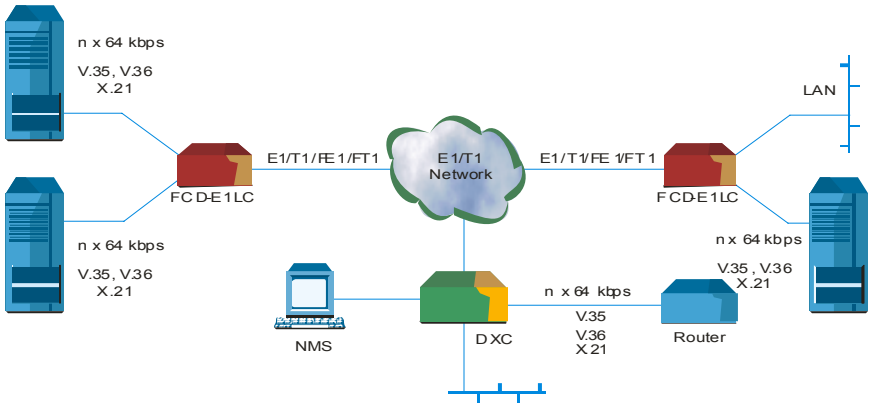


Figure 5-1. FCD-E1LCs on an E1 Network

Guidelines for Configuring Typical Application

Certain guidelines are relevant to this application. In general, there are two basic configuration steps (described below) that need to be followed when deploying any FCD-LC unit.

1. IP Configuration – Setting the device host IP address and the manager IP address.
2. Physical layer configuration – Setting the TDM parameters according to the application requirements and topology.

Table 5-1. Configuration Summary

Device	E1 Parameters	IP Parameters
FCD-LC (A)	• Line Type: E1	IP address: 172.17.152.192
FCD-LC (B)	• Line Type: E1	IP address: 172.17.152.230

5.2 Configuring FCD-LC Units

This section explains how to configure the FCD-LC units. The configuration procedure is similar for both units, except for defining different host IP addresses.

Configuring the IP Parameters

IP parameters are configured via the terminal application.

➤ **To configure the IP parameters:**

1. Display the IP menu (**Configuration** > **System** > **IP**), and configure the IP address of the FCD-LC:
   - FCD-LC (A) host IP address – 172.17.152.192
   - FCD-LC (A) host IP address – 172.17.152.230
2. Save the changes.

```
Configuration>System>IP
1. IP ADDRESS                          (172.17.152.192)
2. SUBNET MASK                         (255.255.255.0)


>
ESC-prev.menu; !-main menu; &-exit
```

Figure 5-2. Configuring IP Parameters for FCD-LC

Configuring Manager List

The **Manager List** command displays IP addresses of known Network Management Stations to which the FCD-LC sends SNMP traps when an alarm occurs. To receive an agent's traps, the management station must type its own IP address in the Manager List. The list may contain up to five entries.

➤ **To view/modify the Manager List:**

1. From the **Options** menu, select **Manager List...**

   The Manager List dialog box appears.

2. Enter/change the IP addresses in the Manager List dialog box by clicking in the addresses field until it's highlighted. Enter the new numbers in the address field. Use the right and left arrows (or mouse) to jump to the next field.
3. Click <**Set**> to display the updated IP Address in the Manager List.

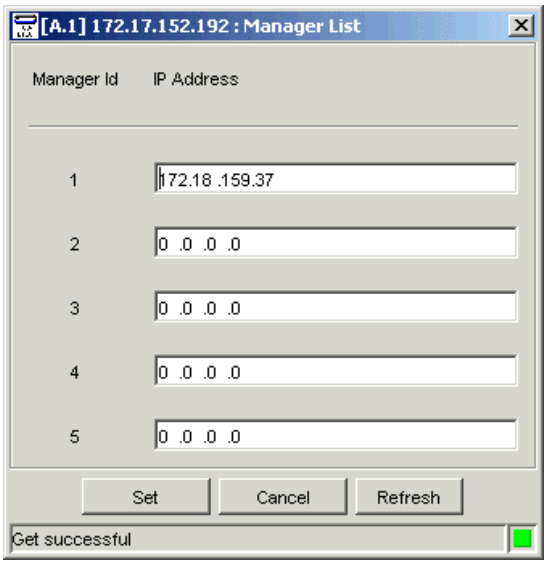


Figure 5-3. Manager List

5.3 Configuring TDM Parameters

The following section outlines the steps to configure the TDM parameters for this application.

Configuring Line Type

➤ **To configure the Main E1 Port Parameters:**

1. Select the Main E1 Port.
2. From the **Configuration** menu, select **Port Parameters** followed by **Software Configuration...**

   The Port Software Configuration dialog box appears (*Figure 5-4*).
3. Set **Line Type=E1**.
4. Click <**Set**>.

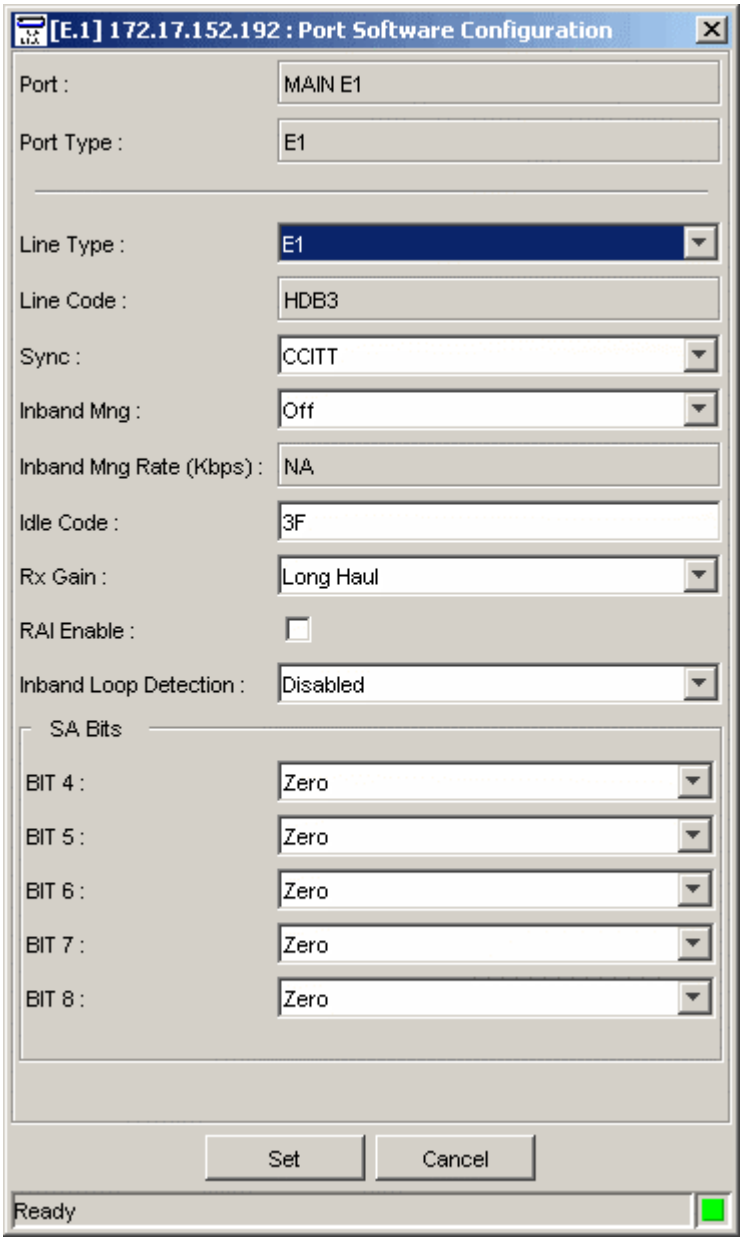


Figure 5-4. Port Software Configuration Parameters – Main E1 Port

➤ **To configure the Sub E1 Port Parameters:**

1. Select the Sub E1 Port.
2. From the **Configuration** menu, select **Port Parameters** followed by **Software Configuration...**

   The Port Software Configuration dialog box appears (*Figure 5-5*).
3. Set **Line Type=E1**.
4. Click <**Set**>.

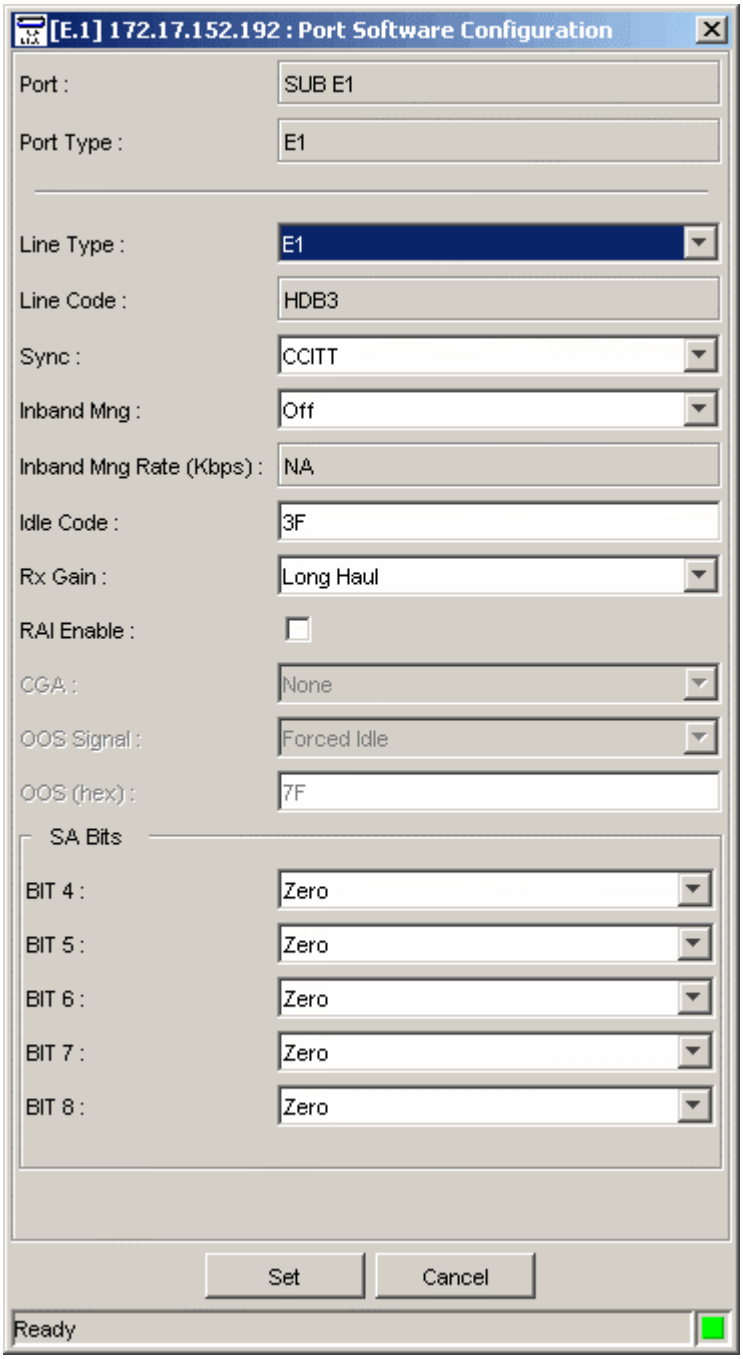


Figure 5-5. Port Software Configuration Parameters – Sub E1 Port

Configuring Timeslot Assignment

The **TS Assignment** command allows you to program the routing of timeslots.

The FCD-LC allows you to program the routing of the individual timeslots.

➤ **To configure TS Assignments:**

1. From the **Configuration** menu, select **TS Assignment...**

Or

2. Click the TS button on the toolbar .

   The TS Assignment window appears (*Figure 5-6*).

3. Select desired time slots and assign type: Data or Voice.
4. Click <**Set**>.

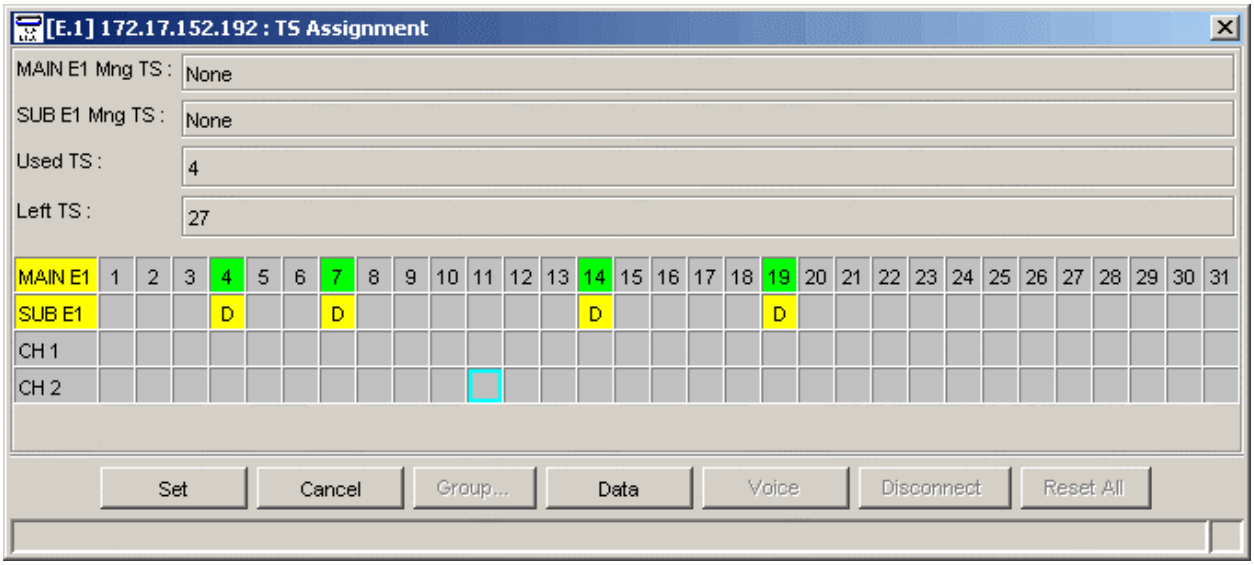


Figure 5-6. TS Assignment for FCD-E1LC

Updating (Downloading) the Configuration to the Agent

After editing the FCD-LC configuration, you can download the information to the FCD-LC Agent.

Notes

- *Update is available only when there is communication with the agent.*
- *If tests are currently active (except Rx Inband), FCD-LC sends the following message: "UPDATE CANNOT BE PERFORMED. Stop tests."*

➤ **To download configuration modifications to the agent:**

1. From the **Configuration** menu, select **Update**.

   The system will perform a Sanity Check, and if passed, the Update Configuration Window appears displaying the message: "**Update operation will replace Agent's configuration"**.

2. Click <**OK**> to confirm Update.

   The new configuration is immediately downloaded to the FCD-LC.

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